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Deficits:
How Big and How Bad?

Ontario Economic Council
Special Research Report

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Preface

Part of the Council's mandate, as outlined in the Ontario Economic Council Act (1970), is to 'create an awareness and public understanding of provincial socio-economic issues by holding seminars and conferences'. Given the rising levels of provincial and federal deficits, the Council had little difficulty in selecting Deficits: How Big and How Bad? as the topic of our 1983 Conference. Motivating our selection were two other important aspects of deficits: 1) large deficits will be with us for a while yet and 2) there is a wide spectrum of views relating to the seriousness of the current deficit levels.

Our objective in mounting this Conference was to inform rather than to persuade. Accordingly, the Council strove to ensure that the persons chosen to present the papers covered a wide spectrum of views. Most but not all of the paper presenters were academics and most, but not all, of the discussants were practitioners.

We wish to thank the Council staff both for running the conference and overseeing the production of the volume.

Needless to say the views expressed in this volume do not necessarily coincide with those of the Council. On a later occasion the Council may issue a position paper on deficits. We take this opportunity to express our gratitude to all those who participated in the Conference and we hope that the volume of studies and commentaries will provide a timely and useful focal point for a continuing public discussion of government deficits.

Thomas J. Courchene
Chairman
Ontario Economic Council

Introduction

David Conklin*

The papers in this volume were presented at a Conference sponsored by the Ontario Economic Council, March 8-9, 1983, in Toronto, Canada. The question, Deficits: How Big and How Bad? was interpreted broadly and from many perspectives. Calculations and computer projections provided estimates of Canadian federal deficit levels at various rates of capacity utilization and with various policy options over the years 1930-1990. Special attention was paid to the nature and role of deficits in the province of Ontario. Authors analysed the relationships between deficits, inflation, interest rates, monetary policy, capital markets, intergenerational transfers, international capital flows, and exchange rates. The opinions of the public and of financial leaders were examined. Recommendations concerning fiscal policy were advocated. In this process, deficits provided a focus for examining our economic system as a whole: for considering the recent history of the economy, for predicting future economic developments, and for formulating policy prescriptions. Furthermore, the discussion of deficits involved the exploration of much of our current understanding of economic theory. Throughout the Conference, appointed discussants provided comments on each paper. Questions and opinions were presented from the floor, and these participants' remarks have been included in the volume to the extent that they cast new light on the issues. The purpose of this chapter is to sketch briefly some of the themes and methodologies pursued in the various papers.

Conklin and Sayeed compiled a summary of the literature, an Overview of the Deficit Debate, which was circulated to participants prior to the Conference. The public accounting framework was described. Canadian ratios of deficits/GNP were compared with those of other countries.

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Full-employment budgets, structural deficits, and inflation adjustments were analysed, together with specific estimates for Canada. Separation of capital spending from current expenditures was discussed. Attention was given to Keynesian theory, crowding-out, international capital flows, and the Ricardian equivalence theorem. The interactions among deficits, monetary policy, and inflation were explored. The importance of forecasting techniques in the prescription of policies was emphasized.

The keynote speaker at the Conference was Professor Franco Modigliani, who entitled his remarks, Government Deficits, Inflation and Future Generations. Modigliani focused on three main points:

> The first is that current deficits are not a major cause of inflation; on the contrary, I shall argue that inflation is a major cause of deficits. The causation goes from stagflation to deficit, not the other way around.
>
> Next, I want to argue that deficits are, nonetheless, a bad thing. They may not be bad in the short run, under some circumstances, but if they continue in the long run, they have serious consequences.
>
> Finally, I propose to establish that deficits are not the cause of our current trouble, despite the fact that they are bad, for the simple reason that there are scarcely any deficits. That is, in terms of that deficit which is harmful, there are very few deficits of any significance at this time (page 55).

In supporting these points, Modigliani emphasized that there is no mechanical connection between running a deficit and creating money. The reason that deficits are bad is not that they cause inflation, but rather that they can crowd out desirable investment. Modigliani compared four common views of deficits: the 'naive' view that deficits are a burden because government debt is just like the debt of a family; the 'naive no-burden' view that we owe the government debt to ourselves, so that it is a simple transfer; the 'sophisticated burden' view that deficits reduce the amount of capital we bequeath to future generations; and the 'super-sophisticated no-burden' view that tax financing and debt financing are equivalent because citizens, realizing that current deficits mean higher taxes in the future, increase current saving by the amount of the deficits. Modigliani rejected the latter argument and supported the 'sophisticated burden' view that deficits crowd out tangible capital, reducing the stock of capital below what it otherwise would be, and transferring the burden to future generations. Nevertheless, Modigliani emphasized that the deficit that creates crowding-out is the rise in the real debt rather than the cash deficit, and that until 1982 there were no deficits in this sense. Large measured deficits, he argued, have been caused by stagflation and high nominal interest payments on outstanding debt.

Professor Doug Auld examined the question, The Ontario Budget Deficit: A Cause for Concern? As a percentage of total provincial expenditure, current deficits are not particularly high compared with deficits of previous years. 'In absolute terms, however, deficits have grown considerably in recent years, reflecting the growth of the public sector' (page 81). Auld emphasized the impact of inflation on debt charges and the impact of unemployment on both expenditures and receipts. After considering policy-induced changes in the Ontario deficit, as opposed to those caused by variations in the level of economic activity, he concluded that 'on balance, discretionary policy over this period appears to have been counter-cyclical' (page 93). Auld examined the issue of how capital spending should be dealt with in the budget. He discussed the argument that capital spending should be financed over the lifetime of the relevant assets, and he indicated the extent to which Ontario deficits would be reduced by such an accounting approach. Auld's calculations indicated that total debt as a percentage of GPP, or in real per capita terms, grew until the late 1970s and has since declined. Consequently, he was optimistic that 'there is very little reason to be concerned about Ontario's debt at this time. The precipitously high interest rates of 1979-82 have created problems of debt management, but these problems should disappear with a return to more moderate interest rate levels' (page 100). Auld does caution however that if the working definition of full employment is above 6.5 per cent, 'it may be necessary to sustain a small structural deficit or realign expenditures and revenues' (page 100).

In the paper, Deficits and the Economy to 1990: Projections and Alternatives, Professors Dungan and Wilson used the econometric FOCUS model of the Canadian economy in order to develop projections based upon several different sets of policies. Important assumptions were made at the outset, both in terms of specific relationships among economic variables and also in terms of exogenous parameters. For example, they assumed that the Bank of Canada would 'conduct monetary policy to accommodate about 6 per cent inflation with about 4 per cent real growth' (page 118). They drew 'heavily upon a long-term trend projection for the United States that was released by Data Resources Inc. in December 1982' (page 117). Their base case projection resulted in a federal deficit of $28 billion in 1983 on a National Income Accounts basis, gradually declining to $18 billion in 1990. They noted that these absolute figures give a misleading picture.

The inflation component of interest payments on the public debt makes up a large part of each number. In addition, the $18 billion figure for the 1990 deficit must be considered in the context of a nominal GNP that will have more than doubled over the projection interval. As a percentage of GNP, the deficit will have fallen substantially by 1990. They concluded:

> The existence of considerable excess supply in the near term, as evidenced by both unemployment and capacity utilization rates, indicates that there is room for near-term fiscal stimulus with little danger of significant short-term crowding-out through financial market or price level effects. (page 124)

Dungan and Wilson stressed, however, that such stimulus should be temporary, so that it would have no significant effects on the medium-term structural deficit.

Dungan and Wilson then conducted a series of policy experiments. This approach permitted a quantitative analysis of the unemployment-inflation trade-off through a series of fiscal policy experiments, with a variety of companion monetary policies. They examined the impact of temporary expenditure increases, the indexation of capital cost allowances, and the implementation of a new method for determining unemployment insurance premiums. These experiments reinforced their base case conclusion that 'a carefully designed fiscal stimulus could help to speed recovery from the recent deep recession' (page 137). It should be noted that each such experiment had a temporary positive impact on inflation, but over the longer term some experiments yielded a reduced rate of inflation.

Professor Michael Parkin examined the question, What Can Macroeconomic Theory Tell Us About the Way Deficits Should Be Measured? He reviewed various ways in which the conventional accounting deficit may be adjusted to arrive at alternatively defined deficits. In this analysis, he pointed out that unfunded pension liabilities are a significant factor that should be considered in correcting the conventionally measured deficit.

The choice of a particular definition must depend 'on which of various questions concerning macroeconomic performance we wish to address, and also on which model of economic behaviour best describes the world in which we live' (page 152). A major conclusion reached by Parkin was that:

> macroeconomic theory is much less clear-cut in its implications for how the deficit should be measured than most economists seem ready to believe. However, to the extent that macroeconomic theory does offer guidance, it suggests that we face a potentially serious problem arising from an evol-

> **ving deficit that has been too big, is too big, and promises to remain too big...The rosy picture painted by the real full-employment deficit calculations is clearly misleading and probably seriously so. (page 153)**

Parkin examined the relationship between the deficit and aggregate demand, and emphasized the role of changes in the deficit rather than simply the size of the deficit itself. Concerning the impact of the deficit on aggregate supply, Parkin stressed the importance of unanticipated fiscal stimulus, stating that 'no particular measure of the deficit has any major role to play in indicating what determines the level of economic activity. It is only the current level of the deficit relative to its previously expected (cyclically adjusted) level that is of concern' (page 165). When considering the deficit and real interest rates, Parkin noted Canada's special circumstances as a small, open economy able to import capital. His detailed discussion of the relationships between deficits and inflation focused on the concept of a deficit process over time and the growth of the money supply over time. Furthermore, Parkin emphasized the dangers of over-correcting the cyclically adjusted or structural deficit when considering the impact of the deficit on inflation. This risk of over-correction occurs because the traditional relationship between unemployment and inflation may no longer hold. There are two reasons why the rate of unemployment that is compatible with zero inflation may have risen. First, the amplitude of cyclical fluctuations has increased. The inflation rate has been more variable, and this has shifted the short-run trade-off between inflation and unemployment. Second, in times of exceptional structural change and reallocation of productive factors the natural rate of unemployment may be higher than in more normal times. Parkin criticized unemployment-adjusted deficits that are based on 7 or 7½ per cent unemployment rates, and suggested 10 per cent unemployment as a more appropriate rate for such adjustments. Finally, Parkin recommended further research on these issues.

Mr. Ian McKinnon, Vice-President of Decima Research, examined the questions What Does the Public Think About Deficits? What Does Bay Street Think About Deficits? The former question was answered by analysing Decima's national public opinion quarterly surveys, particularly that of September, 1982. The latter question was answered through interviews with leaders of the Canadian financial community, specially conducted for this paper.

McKinnon concluded that, for Canadians, 'the economy now dominates the political agenda' (page 190) and that there has been 'a precipitous decline in the public's assessment of the economy' (page 190). That is, the federal government was perceived as having a responsibility to act, particularly to decrease interest rates. The survey

> certainly does not depict a Canadian public given to Keynesian visions of governments spurring aggregate demand through deficit spending. Instead, it strongly indicates a 'public household' view of what governments' actions should be. As individuals should try to economize and save in hard times, so too should governments. (page 195-6)

McKinnon's survey of financial leaders revealed that they underestimated this fiscal frugality of the average Canadian. Within the financial community, there was no consensus in regard to altering the size of the deficit. The fear of crowding-out as a result of the large deficits seemed prevalent, particularly when future recovery would bring private requirements to the capital markets.

Professor Ron Wirick examined Fiscal Policy 'Crowding-Out' of Private Investment in an Open Economy: The Case of Canada. Wirick began with 'the fact that in a creditworthy country such as Canada, gaps between domestic savings and investment can be financed by virtually unlimited international capital flows at an exogenous world interest rate' (page 215). Wirick focused his principal attention on the question of whether fiscal policy crowds out private investment by causing 'an increase in borrowing costs to Canadian corporations' (page 216). The bulk of his paper consisted of calculating and analysing three components of the gap between the Canadian corporate and U.S. treasury bond rates. He labeled these components the corporate premium, the currency-related differential, and the sovereign-risk premium. He concluded that 'there is absolutely no indication of any recent increase in the sovereign-risk premium, despite the ballooning deficits of the Canadian federal government' (page 228). He also argued that stimulative fiscal policy 'could, in principle, reduce the magnitude of the corporate interest premium' (page 220). The fluctuations between Canadian and American bond yields have been caused, to a large extent, by differences in the expected inflation rates in the two countries. Consequently, comparing yields in the two countries one finds less variation in the real than in the nominal differences. Therefore, 'there is very little reason to believe that bond-financed fiscal deficits of the magnitude presently contemplated will exert any upward pressure on domestic real interest costs' (page 232).

Wirick cautioned, however, that deficits could put upward pressure on the Canadian exchange rate if they were financed through capital inflows. With such a currency appreciation, Canadian exports would decrease and imports would increase. In this way, deficits could crowd out net exports rather than investment. Wirick's analysis of this type of crowding out was based largely on the theory developed originally by Fleming and Mundell.

Wirick concluded that

> there is little doubt in the author's mind that a package of fiscal stimulation could be designed, even one of substantial size, that would have no adverse effect on domestic interest rates or investment. Furthermore, if the Bank of Canada cooperated by preventing any significant appreciation of the Canadian dollar, there should not be any major crowding-out of the net export sector. In short, it should be possible for the fiscal and monetary authorities to provide a large aggregate demand stimulus to the Canadian economy, if this were deemed desirable. (page 244)

Like many other authors, Wirick saw the demand stimulus of greater deficits as carrying with it the risk of renewed inflation. This spectre of another burst of inflation leading to a subsequent, possibly even worse, recession haunted much of the Conference, and Wirick typically stressed the need to avoid the twin risks of 'a downward spiral of plunging business and consumer confidence and an upward spiral of escalating price expectations' (page 245).

In his examination of Deficits and Capital Markets, Dr. John Grant emphasized the financial community's great fear of deficits. He suggested several reasons for this fear. Most important is a concern that deficits will be financed through the creation of money, thereby causing inflation. Expectations of price stability cannot be restored easily or quickly: 'A government that has once destroyed social trust in price stability must work painfully and hard to restore it' (page 262). Grant pointed to the threat of crowding-out as a second cause for dislike of deficits. Some private borrowers may be crowded out just as effectively as they would be by a tax increase. Grant stressed that monetary policy is an important determinant of the nature and extent of crowding-out, and that 'there has been no simple relationship between deficits and the rate of monetary expansion' (page 272). In addition, the ability of Canadian borrowers to have access to foreigners' savings can modify tendencies for deficits to crowd out private investment.

Some members of the financial community oppose deficits because they prefer current to deferred taxation, perhaps because of the interest burden. Some may expect to receive less government services than they pay for. Overall, however, Grant saw the inflation theme as the important element in the financial community's concern. The high level of current real interest rates is a result of the high risk premium demanded because of expectations of renewed inflation. Grant expressed his view that government deficits will fall in the late 1980s, as demographic changes reduce the demand for government services relative to the size of the economy. Returning to a stable price level will be a difficult, but important process. In this, Grant felt that steadfast monetary restraint will be essential.

In his paper, Government Deficits: Historical Analysis and Present Policy Alternatives, Professor John McCallum addressed a series of questions:

> What was the stance of fiscal policy, and how much did it contribute to (or alleviate) the Depression (of the 1930s)? How much less severe would the Depression have been if today's automatic stabilizers had been in place and/or today's approach to discretionary fiscal policy had then prevailed? Or, to turn the question around, how much worse would our present recession be if we had followed 1930s-style fiscal policy in 1982? (page 284)

With his computer simulations, McCallum concluded that, 'had the automatic stabilizers of today existed during the thirties, the muliplier and hence the depth of the Depression would have been reduced by just over 40 per cent' (page 294). Furthermore, his calculations suggested that 'the shock to the Canadian economy in 1982 may have been of the same order of magnitude as the shocks of the early thirties and that the difference in overall fiscal policy has been a key factor in explaining why the economy has not this time fallen into major depression' (page 295). McCallum analysed federal fiscal policy throughout the 1970s and concluded that it exerted 'a helpful stabilizing influence' (page 305) and that 'a key point to emphasize is that over the period 1971-81 discretionary federal fiscal policy contributed at least as much to stability as did the automatic stabilizers of all levels of government combined' (page 307). However, the extremely severe 1982 recession was not met with appropriately large deficits. In fact, 'the small increase in the adjusted federal deficit in 1982 was mainly the result of a non-discretionary increase in real interest rates' (page 305). Consequently, McCallum recommended 'a temporary increase in automatic stabilizers or a fiscal stimulus whose size is made contingent on the strength of the economy over the coming months' (page 309).

Professors Neil Bruce and Doug Purvis discussed Fiscal Discipline and Rules for Controlling the Deficit: Some Unpleasant Keynesian Arithmetic. They stressed the need for 'commitment in the form of fiscal policy rules. These are promises to pursue certain courses of action, particularly with respect to the deficit, even when it is politically opportune to renege' (page 323). They advocated fiscal prudence, meaning that 'in some sense and in some time frame, the government must balance its budget' (page 326). The common argument that the budget should be balanced over the cycle, with deficits in recession offset by surpluses in expansions relies upon a combination of automatic stabilizers and discretionary policies. Bruce and Purvis doubted that this goal could be attained through reliance on discretionary policies. They noted that the cycle consists of complex and uncertain fluctuations, and that policymakers cannot easily predict future deficits against which the present position should be balanced. During expansions, a strong temptation exists to forgo surpluses. Furthermore, lags occur in knowing the economy's position and in deciding what to do about it. For a variety of reasons, they 'believe that fiscal discretion has harmful effects and that adopting and following fiscal rules can lead to an improvement in macroeconomic performance' (page 328).

Bruce and Purvis advocated the establishment of a tax and expenditure structure that would balance the budget over the medium term but would automatically be counter-cyclical in response to short-run fluctuations. They explained the mechanics of various types of automatic stabilizers, indicating the differences among proportional, integral, and derivative automatic stabilizers. They recommended greater attention be paid to the role of integral stabilizers, through which 'the stimulus (contraction) becomes greater the longer the economy remains away from its normal or average state;' and derivative stabilizers, through which stimulus would occur 'if the economy grew more slowly than trend, regardless of whether the output gap were positive or negative' (page 330).

Bruce and Purvis discussed the proper role of fiscal policy in achieving an optimal pace of transition from high to low inflation. They stressed that the rate of monetary expansion will likely be affected by the rate of growth of the nominal value of liquid government liabilities. The increasing ratio of government debt to GNP has probably affected real interest rates and has reduced public confidence in the policies being pursued. Consequently, they argued that any additional fiscal stimulus at the present time should automatically be self-eliminating as recovery develops.

Of crucial importance is the commitment to reduce the deficit with recovery. Whether or not the government fulfills this commitment will seriously affect the confidence of the private sector.

Professor David Laidler acted as rapporteur for the conference. He emphasized that the major cause for concern about deficits is the fear that deficits will lead to higher inflation. While current levels of Canadian deficits have not been produced by irresponsible fiscal policies, any substantial increases in deficits could be dangerous, in that they could rekindle inflation. In contemplating the burden imposed by government debt, Laidler noted that the private sector may wish to hold a roughly constant fraction of its wealth in government debt. As the economy grows, the government must run a deficit if that demand is to be satisfied. The debt-to-income ratio is an important statistic from this perspective.

In describing the current state of the economy, Laidler argued that excessively tight monetary policy underlay the stagflation which, in turn, led to high deficits. He criticized the failure of federal authorities to coordinate fiscal and monetary policies properly. In analysing the deficits, Laidler agreed with inflation adjustments as an accounting procedure that is useful in order to calculate the rate at which real government debt is being accumulated by the public. However, he felt that the cyclical adjustments to the measured deficit were more controversial. In particular, he believed that unemployment rates of between 7 and 8 per cent were not attainable over the medium-term horizon. Consequently, fiscal policies based on those over-optimistic forecasts could rekindle inflation and lead to even worse recession in the future.

In discussing crowding-out, Laidler acknowledged that the ability of Canadians to borrow abroad, essentially at interest rates established in the United States capital market, would ensure that the Canadian deficit would be unlikely to crowd out private investment. Nevertheless, he noted that interest payments will result from such international borrowing and these will become a real drain on Canadian production. Furthermore, Canadian deficits could undermine confidence in the stability of the dollar and could threaten exchange rate depreciation.

Laidler discussed the important role of public expectations in determining the effectiveness of fiscal policies. In particular, he felt that public trust in the federal economic authorities has been eroded and that this erosion has made the size of the deficit a more serious problem than it would otherwise have been. Inflation expectations have become deeply embedded in the public's mind, and these must be reduced. The only cure for inflation is slack in the country's economic activity. The current recession is providing this necessary slack, and, consequently, only short-term token stimulative policy should be pursued. 'If the Canadian economy is to be put upon a stable long-term footing, we must let the current recession take its course. The risks of doing otherwise are too great' (page 358).

Throughout this volume, discussants' remarks provide criticisms and alternative points of view. It is hoped that the variety of insights and perspectives will assist the reader in analysing this complex issue. Answers to the question 'Deficits: How Big and How Bad?' appear to depend upon the economic circumstances of a particular time and place. Although the authors responded in the context of Canada and Ontario in 1983, the material that follows has been presented in such a way that it should be useful in other places and at other times. The search for appropriate analytical methodology provides the general theme throughout the book, while the specific references and calculations are useful both in themselves and as illustrations of the methodology.

Overview of the deficit debate

David Conklin* and Adil Sayeed**

This background paper provides a broad overview of some of the issues pertaining to government deficits. It is our hope that readers who are not completely familiar with all of the basic analytical concepts involved in the measurement and interpretation of deficits will find this paper a useful introduction to the deficit debate. The issues discussed in this paper are, of course, covered in greater depth in the conference papers reprinted in this volume.

The first section of this paper presents a brief outline of the budgeting procedures conventionally used to measure government deficits. It also compares recent Canadian deficits with deficits in other countries and with past Canadian deficits. The second section discusses various proposals for adjustments to the conventional measurement procedures. The third section covers the different theoretical views of how government deficits affect the economy. The concluding section explores the linkages between views of how deficits should be measured and views of the economic impacts of deficits.

WHAT IS THE DEFICIT?

People usually refer to a particular figure to describe a deficit. As with many things in life, however, a single word or number conveys very little meaning. This section of our paper will indicate some of the complexities involved in descriptions of deficits.

A government budget furnishes a detailed accounting of revenues and expenditures. A government deficit is simply the excess of expenditures over revenues. However, the precise definitions of 'revenue' and 'expenditure' depend on the particular accounting framework used to draw up the budget. Thus, a deficit may appear smaller or larger simply because of a shift from one accounting system to another.

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These accounting differences can be illustrated by referring to the various measures of the federal deficit that are reported. The public is probably most familiar with the deficit calculated on a Public Accounts basis. The Public Accounts include revenues and expenditures of the various government departments and agencies.

However, the Public Accounts deficit is not a measure of the total borrowing needs of the federal government, which are also affected by other, 'non-budgetary' transactions. 'Non-budgetary' expenditures include loans and investments made by the federal government as well as any net deficits recorded by 'specified purpose funds' such as the Unemployment Insurance fund. Net surpluses reported by public employee pension funds managed by the federal government are recorded as 'non-budgetary' revenues. The 'financial requirements' of the federal government are a measure of the excess of total expenditures, budgetary and non-budgetary, over total revenues. An additional measure, the 'net cash requirements', differs slightly in that the net effect of government transactions on the foreign exchange market is also included. The differences between these measures are set out below:

Federal deficit on a Public Accounts basis	=	Budgetary expenditures	-	Budgetary revenues
		+		+
		'Non-budgetary' expenditures		'Non-budgetary' revenues
Federal financial requirements	=	Total outlays	-	Total receipts
+ or -				
net requirements due to foreign exchange transactions				
Federal net cash requirements				

The revenues and expenditures of federal ministries and agencies are recorded in the Public Accounts. The financial and net cash requirements measure the federal government's demand for loanable funds. However, economists generally prefer yet another measure, the deficit computed on a

National Accounts basis, for the purpose of gauging the overall impact of government on the rest of the economy.

The National Accounts deficit differs from the Public Accounts deficit in its treatment of revenues and expenditures and in that it includes net changes in the 'specified purpose funds.' The National Accounts deficit measures the increase in the net liabilities of the federal government. Purely financial transactions that affect the borrowing requirements, but not the net liability position, of the federal government are not included in the National Accounts. Because of the widespread acceptance of the system of National Accounts among economists, future references to deficits in this paper will be to deficits computed on a National Accounts basis.

Federal deficit on a Public Accounts basis	=	Federal expenditures on a PA basis	-	Federal revenues on a PA basis
		+ or - Adjustment to NA basis		+ or - Adjustment to NA basis
		+		+
		Net deficits reported by 'specified purpose funds'		Net surpluses reported by 'specified purpose funds'
Federal deficit on a National Accounts basis	=	Federal expenditures on a NA basis	-	Federal revenues on a NA basis
+		+		+
Deficit of the provincial-local-hospital sector on a National Accounts basis	=	Expenditures of the P-L-H sector on a NA basis	-	Revenues of the P-L-H sector on a NA basis
+		+		+
Net change in CPP & QPP balances	=	Benefits paid by CPP & QPP	-	Revenues of CPP & QPP
Deficit of the consolidated gov't. sector on a National Accounts basis	=	Expenditures of the CGS on a NA basis	-	Revenues of the CGS on a NA basis

From some perspectives - for example, with respect to the monetization of the deficit - only the federal deficit is important. However, a meaningful measure of government activity must cover all levels of government. Statistics Canada aggregates the revenues and expenditures of all governments in Canada, nets out intergovernmental transactions, and reports the budget position of the consolidated government sector. This measure also includes the receipts and expenditures of the Canada and Quebec Pension Plans and of public hospitals. The progression from the federal deficit calculated on a Public Accounts (PA) basis to the deficit of the consolidated government sector (CGS) computed on a National Accounts (NA) basis is presented above.[1]

Table 1 shows the precise values recorded under the various accounting definitions from 1970 to 1982. In recent years, federal financial and net cash requirements as well as federal deficits on a National Accounts basis have been smaller than federal deficits measured on a Public Accounts basis. This difference is due to the exclusion of public employee pension fund surpluses from the Public Accounts. Similarly, deficits of the consolidated government sector have been smaller than federal deficits on a National Accounts basis because surpluses recorded by the Western provincial governments and by the Canada and Quebec Pension Plans are included in the consolidated government sector accounts.

No accounting framework can be relied upon to reveal the whole truth about government transactions with the rest of the economy. For example, receipts and outlays of the Canada and Quebec Pension Plans are recorded on a cash, rather than an accrual, basis in the consolidated government sector accounts. If the public pension funds were treated on an accrual basis, the change over the course of the year in the value of future pension obligations to current plan members would have to be included. The difficulties involved in attaching a precise value to the change in future obligations stand in the way of accrual accounting of the public pension funds. Nevertheless, it is clear that current contributions are substantially below the levels necessary to fund the future pensions of current contributors. If the public pensions could be treated on an accrual basis, the deficit position of the consolidated government sector would increase.[2]

It is also worth noting that 'deficits' of government-owned business enterprises do not show up in the consolidated government accounts unless they are financed by direct subsidies. It is assumed that Crown corporations borrow only to finance the acquisition of revenue-generating capital assets. If this is the case, prospective purchasers should evaluate debt issued by public corporations according to the same rules used to evaluate private sector debt. In other words, borrowing by a publicly owned cor-

TABLE 1
Budget Positions 1970-82 ($ millions)

Year	Federal Public Accounts surplus(+) or deficit(-)	Federal financial requirements	Federal net cash requirements	Federal National Accounts surplus(+) or deficit(-)	Consolidated govt. sector surplus(+) or deficit(-)
1970	- 163	- 585	- 2,159	+ 266	+ 806
1971	- 723	- 1,443	- 2,156	- 145	+ 130
1972	- 31	- 1,108	- 1,215	- 566	+ 81
1973	- 6	- 753	+ 4	+ 387	+ 1,252
1974	- 434	- 1,824	- 2,069	+ 1,109	+ 2,795
1975	- 4,833	- 5,829	- 5,050	- 3,805	- 4,049
1976	- 5,048	- 4,338	- 4,773	- 3,391	- 3,222
1977	- 8,179	- 7,708	- 6,559	- 7,303	- 5,005
1978	-13,247	-12,084	- 6,429	-10,685	- 6,954
1979	-11,504	-10,719	-11,049	- 9,264	- 4,691
1980	-12,512	-11,153	-10,343	-10,153	- 5,983
1981	-11,373	- 7,243	- 8,588	- 7,979	- 2,233
1982	-22,285	-20,483	-18,211	-21,083	-18,600

SOURCES: Bank of Canada, Monthly Review; Canada, Department of Finance, (1982).

poration should not have a qualitatively different impact on the economy than borrowing by a private firm.

If one believes, on the other hand, that Crown corporations are like other branches of government and are not operated like private firms, then one will conclude that measurement of only direct government borrowing is inadequate. If capital market participants believe that there is no distinction between government and Crown corporations, the measure of government borrowing should include borrowing by publicly owned enterprises. 'Net borrowing requirements' of Canadian governments and government-owned business enterprises are reported by Statistics Canada in the Financial Flow Accounts. However, because of the difficulties involved in collecting and assessing data from both governments and their enterprises, the Financial Flow Accounts generally lag at least one year behind the National and Public Accounts.

Now that some of the basics of budgeting have been covered, it might be helpful to place Canada's current government deficit in perspective by attempting some comparisons with deficits in other countries and with past Canadian deficits. One method of making rough comparisons across countries and across time is to calculate the ratio of the deficit relative to national income. A comparison of deficit/GNP ratios casts some light on the question of whether Canada's current government deficit is disproportionately large relative to foreign deficits and relative to our own past deficits.

Accordingly, Table 2 presents data for the deficit/GNP ratios of seven major industrialized countries over the period 1978-82. Canada has the fourth highest ratio over this period. Many may be surprised to find that Canada's deficit/GNP ratio over this period has been less than those of Japan and West Germany, two countries with a reputation for pursuing 'conservative' economic policies.

It is also interesting to note that Canada's deficit/GNP ratio for 1978-82 is less than the 3.6 per cent average prevailing during the 1930s and the 11.3 per cent average prevailing during the Second World War. The ratios for selected periods are presented in Table 3. This information concerning our own past deficits and deficits in other countries may be of some use in assessing Canada's current government deficit.

TABLE 2
Deficit/GNP ratios of seven countries, 1978-82

Country	Deficit(-) or surplus (+) as % of GNP 1978	1979	1980	1981	1982[a]	Average 1978-82
Canada	-3.1	-2.0	-2.1	-1.3	-6.4	-3.0
France	-1.9	-0.7	+0.3	-1.6	-2.9	-1.4
Italy	-9.7	-9.3	-8.3	-11.9	-12.2	-10.3
Japan	-5.5	-4.8	-4.2	-3.9	-3.3	-4.3
United Kingdom	-4.2	-3.1	-3.2	-2.0	-2.0	-2.9
United States	0	+0.6	-1.3	-1.0	-3.7	-1.1
West Germany	-2.5	-2.7	-3.1	-4.0	-4.1	-3.3

NOTE: Data are for the consolidated government sector in each country, not just the central government. Figures for 1982 are estimated.
SOURCE: Economic Outlook. OECD (December 1982)

TABLE 3
Deficit/GNP ratios over selected periods in Canada

Period	Deficit as % of GNP
1978-82	-3.0
1961-77	-0.2
1946-60	+0.8
1940-45	-11.3
1930-39	-3.6

SOURCES: Canada, Department of Finance (1982); Statistics Canada, National Income and Expenditure Accounts V. I (1975) Cat. 13-533 Occasional

MEASUREMENT OF THE DEFICIT

Once a suitable accounting framework has been chosen, computing a deficit might appear to be simply a matter of subtracting total revenues from total expenditures. However, a number of adjustments to this basic method have been proposed on the grounds that the reported deficit, even on a National Accounts basis, is not a reliable indicator of the economic impact of the government budget.

The full-employment budget

Perhaps the best-known adjustment is calculation of the full-employment budget (sometimes referred to as the high-employment budget or cyclically-adjusted budget). Full-employment budgeting involves estimating what the government's revenues and expenditures would have been had the economy been operating at full capacity throughout the year.

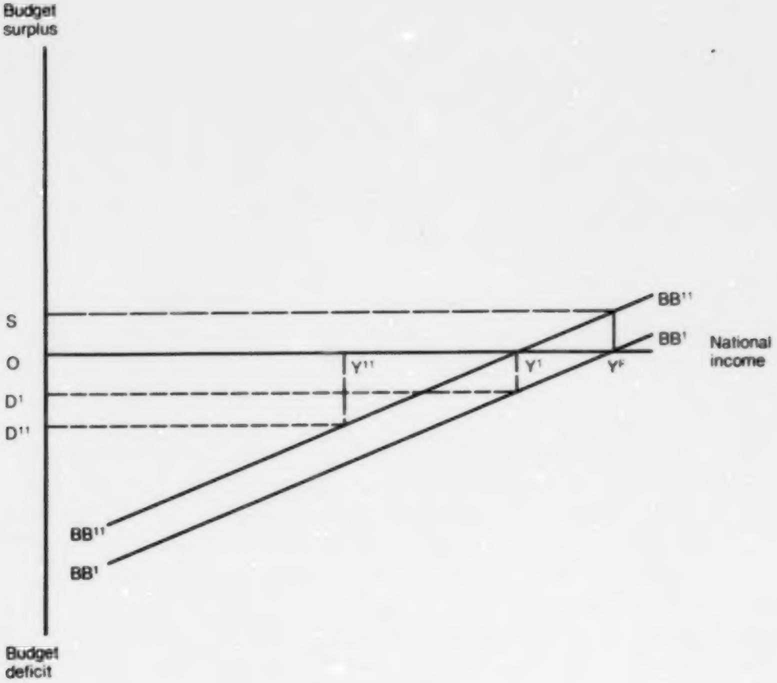
Proponents of full-employment budgeting point out that the actual budget position is affected by cyclical fluctuations in economic activity. As personal and corporate incomes, sales receipts, and payrolls fall below anticipated levels during cyclical downturns, so do revenues flowing to the government from income, sales, and payroll taxes. On the expenditure side, unemployment insurance payments increase as unemployment rises during a recession. Consequently, a larger deficit may not be due to a shift in government policy or to profligacy on the part of the government. Instead, an increase in the deficit may be caused by the response of automatic stabilizers to a worsening of the recession.

However, if calculation of a full-employment budget revealed a 'structural' deficit even at full employment, then some commentators would express concern over this remaining 'structural' deficit. Their concern would centre on the fact that, with recovery, tax and expenditure programs would have to be changed in order to balance the budget. Recognizing this concern, other commentators might argue that full-employment deficits were warranted by the severity of the recession, and that tax and expenditure changes could be readily implemented after recovery arrived. The significance of a structural or full-employment budget deficit depends, then, on one's theoretical position and one's confidence in the ability of government to alter its programs as recovery arrives.

The full-employment budget is also useful in that changes in it over time reflect deliberate shifts in fiscal policy. From this perspective, the full-employment budget position is a better measure for the purpose of analyzing fiscal policy than is the unadjusted deficit.

A change in a government's budget position from one year to the next can be decomposed into a change due to the cyclical sensitivity of revenues and expenditures and a change resulting from adjustments in tax rates and spending plans. Figure 1 illustrates this decomposition.[3] The line BB^1 depicts the budget positions of a hypothetical government that would result at different levels of national income. A given set of tax rates and spending plans is assumed to be fixed initially. BB^1 crosses the horizontal axis at Y^F, the full capacity level of national income, implying that the budget would be balanced at full employment. If income is initially at Y^1, below the full employment level, the government runs a deficit

Figure 1



of D^1, because tax revenues are lower and unemployment insurance payments are higher than they would have been at full employment.

Suppose that the government decides to balance the budget over the coming year and that income is expected to remain at Y^1. A balanced budget at Y^1 can be achieved only by raising tax rates and/or reducing planned expenditures. A new line, BB^{11}, depicts the budget positions at different income levels under the new tax and spending regime. Assume for simplicity that BB^{11} is everywhere parallel to BB^1. BB^{11} crosses the horizontal axis at Y^1 and shows a surplus of S (exactly equal to D^1 if BB^1 and BB^{11} are parallel) at Y^F.

Now suppose that national income falls unexpectedly to Y^{11}. Despite the government's intention to balance the budget, the fall in national income is so large that the deficit actually increases to D^{11}. D^{11} is a measure of the effect of the unanticipated fall in national income on the government's budget position. S measures the effect of the government's efforts to reduce the deficit. The net change in the actual deficit, D^{11}-D^1, is equal to D^{11}, the cyclical shift towards deficit, less S, the policy shift towards surplus.

The change in the budget position calculated on a full-employment basis shows only S, the shift towards surplus resulting from higher tax rates and/or reduced spending plans. This is not to suggest that actual deficits caused by recessions can be ignored. What full-employment budgeting can make clear is that increases in government deficits are sometimes the result of unexpected cyclical fluctuations, rather than of deliberate government policy. It cannot be concluded simply on the basis of a rise in the reported deficit that a government is pursuing a policy of deliberate fiscal expansion. Because unforeseen cyclical effects are removed, a change in the full-employment budget position can be interpreted as being indicative of a conscious shift in the fiscal stance of government. The full-employment budget position is put forward, not as a replacement for conventional measures, but as a supplementary indicator of the stance of discretionary fiscal policy.[4]

Calculation of this supplementary indicator can be a perilous exercise. The simple example illustrated in Figure 1 obscures the difficulties involved in actually computing the full-employment budget position of a government. In practice, only the actual budget position and the actual level of income in any particular year are observable. The position of a line such as BB^1 in Figure 1 can only be approximated by estimating what budget positions would have been realized at different levels of income given the underlying tax and spending regime. In addition, the precise value of Y^F at any given time can never be established with complete confidence. Y^F is, of course, a purely hypothetical concept. The best that can be attempted is a reasonably precise estimate of Y^F.

Computing the full-employment budget position involves estimating Y^F, estimating the effect of a change in national income on the government's budget position (the slope of a line such as BB^1), and using these estimates and knowledge of the actual budget position and actual income level to calculate what the budget position might have been at full employment. Methods of computation run the gamut from simple calculations designed to yield rough approximations to complex series of equations intended to generate more precise estimates.[5]

No method can be relied upon to produce absolutely reliable estimates of Y^F during a period of structural readjustment. It is widely believed that the decline of what were once leading industries due to a loss of competitiveness relative to foreign producers has contributed to the severity of the recession in North America. In other words, part of the fall in output and employment in some sectors may be a permanent, rather than a cyclical, phenomenon. As labour and capital can only be shifted gradually out of declining industries into expanding sectors, potential real growth must be relatively low during such a period. Past growth trends can no longer be relied upon to estimate the current full-capacity level of national income. Estimates of Y^F and of the full-employment budget position must be treated with even more caution during a period of structural change.

These considerations must be kept in mind when one examines Tables 4 and 5. Table 4 presents estimates of the full-employment budget position of the federal government from 1970 to 1981 made separately by the federal Department of Finance, the Conference Board of Canada, and the Ontario Ministry of Treasury and Economics. Table 5 presents estimates of the full-employment budget position of the consolidated government sector over the same period made by the Department of Finance and the Conference Board.[6] Not surprisingly, no two sets of estimates exactly coincide. Each group generated its own estimates of the full-employment level of national income and of the effect that a change in income would have had on revenues and expenditures.

Inflation adjustment of the budget

During a period of high inflation, great care must be exercised before conclusions are drawn from data reported in unadjusted dollar values. For example, the fact that Canada's GNP at the end of 1982 measured in end-of-1982 dollars was greater than GNP at the end of 1981 measured in end-of-1981 dollars says nothing, by itself, about whether the real level of production rose or fell during 1982. Rising prices during 1982 meant that a given number of dollars bought a smaller amount of goods at the end of

TABLE 4

Estimates of the full-employment budget position of the federal government, 1970-81 ($ millions)

	Dept. of Finance 'cyclically-adjusted' estimates	Ontario Ministry of Treasury and Economics 'full-employment' estimates	Conference Board 'high-employment' estimates	Actual Surplus(+) or deficit(-)
1970	+541			+266
1971	+3	+136		-145
1972	-655	-232		-566
1973	-598	+224	+258	+387
1974	-3	+740	+1,193	+1,109
1975	-3,213	-2,449	-2,621	-3,805
1976	-3,334	-1,475	-2,107	-3,391
1977	-6,084	-4,580	-6,095	-7,303
1978	-9,060	-7,106	-9,320	-10,654
1979	-7,942			-9,213
1980	-7,101			-10,697
1981	-3,191			-7,504

SOURCES: Canada, Department of Finance (1982); Carmichael (1979); Ontario Budget 1979.

TABLE 5
Estimates of the full employment budget position of the consolidated government sector, 1970-81 ($ millions)

	Dept. of Finance 'cyclically-adjusted' estimates	Conference Board 'high employment' estimates	Actual surplus(+) or deficit(-)
1970	+1,999		+806
1971	+322		+130
1972	-78		+81
1973	-82	+1,072	+1,252
1974	+1,320	+2,937	+2,795
1975	-3,263	-1,720	-4,049
1976	-3,235	-942	-3,222
1977	-3,455	-2,943	-5,005
1978	-4,955	-4,887	-6,954
1979	-2,887		-4,691
1980	-575		-5,983
1981	+4,162		-2,233

SOURCES: Canada, Department of Finance (1982); Carmichael (1979).

1982 than the same number of dollars bought at the end of 1981. GNP figures must be expressed in terms of the same base-year dollars before production levels can be compared over time.

It has been suggested that a similar adjustment should be made before a government deficit is measured in any particular year. A government deficit on a National Accounts basis measures the increase in the money value of the government's liabilities. In other words, an annual deficit of $20 billion means that the government owes $20 billion more at the end of the year than it owed at the start of the year. However, during a time of inflation, comparisons over time of total government debt measured in current dollars run into the same problems as comparisons over time of nominal GNP data.

To take a simple example, suppose a government owes $100 billion at the start of a year, runs a deficit of $20 billion over the course of the year, and ends the year with a total debt of $120 billion. As in the case of nominal GNP figures, total debt at the end of the year measured in end-of-year dollars should not be compared directly with total debt at the beginning of the year measured in start-of-year dollars. In this hypothetical case, suppose prices rose by 10 per cent during the course of the year. A 10 per cent rate of inflation means that a $100 billion debt measured in start-of-year dollars is equivalent to a $110 billion debt ($100 billion x 1.1) measured in end-of-year dollars. Measurement in a common unit shows that total government debt has increased by only $10 billion in end-of-year dollars (or by $9.1 billion in start-of-year dollars if the alternative calculation is performed), rather than by the $20 billion nominal deficit.[7]

Several prominent economists have argued that the change in the real value of the government debt is a more meaningful measure than the nominal deficit, which measures the change in the money value of the debt.[8] At first glance, suspicions might arise that this procedure is merely a 'sleight-of-hand' accounting technique concocted by government apologists to reassure the public that deficits are not as large as they seem. One commonly voiced objection is that inflation adjustment is irrelevant from the point of view of gauging the effect of a government deficit on the private sector. Some argue that whatever the importance of the change in the real value of the government debt, it is the nominal deficit that must be financed by government borrowing.

However, the inflation-adjusted budget position can also be advocated as the best measure of direct government activity in financial markets. This viewpoint rests on the assumption that asset-holders seek to maintain the real value of their holdings. They accomplish this by demanding that an inflation premium be built into nominal interest rates. An inflation premium compensates holders of government bonds (or any other financial asset) for the inflation-induced erosion of the purchasing power of the bond. Thus, it should not be expected that holders of government bonds treat the inflation premium component of nominal interest receipts as regular income to be divided between consumption and saving. If real wealth is to be maintained, inflation premium payments must be entirely allocated to additional saving. Under this assumption, the accurate measure of the 'net' demand by government for loanable funds is the reported deficit minus that portion of government interest expenditures channelled automatically into private saving.

Two methods of inflation-adjusting the deficit have been established. One approach seeks to measure the change in the real value of total government debt. This involves subtracting from the reported deficit the amount by which the actual inflation rate caused a real depreciation of the debt. The other method entails estimating the portion of interest payments that were actually inflation premiums paid to holders of government debt. These inflation premiums are based on expected inflation, which may not equal actual inflation.

If the actual inflation rate were always perfectly anticipated, the two inflation adjustment procedures would exactly coincide. In other words, the deficit minus inflation premium payments would always equal the change in the real value of the debt measured in end-of-year dollars. However, when the actual rate of inflation diverges from the anticipated rate of inflation, the two inflation adjustment methods arrive at different results.

Both approaches have been applied to Canadian data. The Department of Finance has produced a set of estimates of the inflation-adjusted budget positions of the federal and consolidated government sectors based on measuring the change in the real value of government debt. In a study commissioned by the Economic Council of Canada, Professor Gregory Jump of the University of Toronto published estimates of the inflation-adjusted budget position of the federal government based on his estimates of expected inflation.[9] A comparison of these two sets of estimates appears in Table 6, which shows that the two methods produced slightly different results in every year. Both methods demonstrate that an increa-

TABLE 6

Estimates of the inflation-adjusted budget positions of the federal and consolidated government sectors, 1970-80 ($ millions)

Year	Federal inflation-adjusted surplus (+) or deficit (-)		Actual federal surplus (+) or deficit(-)	Dept. of Finance inflation-adjusted estimates for cons. govt. sector	Actual surplus(+) or deficit(-) of cons. govt. sector
	Dept. of Finance estimates	Jump estimates			
1970	+1,075	+800	+266	+2,148	+806
1971	+463	+400	-145	+1,145	+130
1972	+468	+300	-566	+1,786	+81
1973	+2,717	+1,600	+387	+5,120	+1,252
1974	+4,187	+2,300	+1,109	+7,937	+2,795
1975	-1,621	-2,200	-3,805	-377	-4,049
1976	-1,047	-1,200	-3,391	+710	-3,222
1977	-5,676	-5,500	-7,303	-2,326	-5,005
1978	-8,377		-10,654	-3,137	-6,954
1979	-3,008		-9,213	+4,100	-4,691
1980	-4,580		-10,697	+1,727	-5,983

SOURCES: Canada, Department of Finance (1981); Jump (1980a).

sing proportion of recent deficits is attributable to inflation.[10]

The capital budget

Division of the government budget into separate current and capital accounts is yet another suggested modification. Proponents argue that formation of a capital budget would bring the government accounts in line with established business accounting practices. In the private sector, a distinction is made between current operating expenses and expenditures on assets expected to yield future revenues. Debt financing of capital investment is considered sound business practice, so long as borrowing costs are less than the expected returns on capital. Since governments also purchase assets that generate revenue and/or public benefits in the future, it is argued that governments should also distinguish between current and capital expenditures. With the aid of a capital budget, a large deficit due to capital investment might be viewed with less concern than a smaller deficit caused by an excess of current spending over revenues.[11]

In fact, some have gone so far as to propose that current expenditures should always be covered by tax revenues, while capital spending should always be entirely debt financed. The rationale for such a policy is to ensure that the beneficiaries pay for the services flowing from public investment in a fair manner. Rather than obliging taxpayers to pay the full price for these services in the form of higher taxes in the years assets are purchased, debt financing allows them to pay gradually as the benefits from public capital accrue over time.

A number of practical difficulties must be resolved before a capital budget can be drawn up. Foremost among these difficulties is the problem of deciding what constitutes public investment. In business accounting, any asset that is expected to generate revenues beyond the year of purchase is treated as capital. Unfortunately, this rule cannot easily be applied to the government sector. An additional problem is the calculation of depreciation on public sector capital.

According to a narrow definition, only expenditures on assets that generate revenue in the form of direct user charges (such as toll bridges and roads) should be considered government capital spending. However, a case can be made that spending on what is known as social overhead capital (such as transportation and communication networks and even health and education facilities) improves long-run economic efficiency, thereby producing higher tax revenue in the future. Use of this broader definition can expand the size of the capital budget considerably.

In Canada, some of the provincial governments currently provide a systematic accounting of capital spending. In background papers accompanying the 1978, 1980, and 1982 budgets, the Ontario Ministry of Treasury and Economics has provided breakdowns of annual capital expenditures extending as far back as the 1970-1 fiscal year.[12] The Ministry favours a broad definition of public capital comprising all assets 'that have a lifespan of more than one year and provide public benefits beyond the initial year.'[13] It should also be noted that the Ministry's figures include expenditures on existing assets acquired from the private sector. Whether or not a clear distinction should be made between spending to purchase existing financial assets and spending to create new capital is yet another unresolved issue in the mechanics of capital budgeting.

The practical difficulties involved in capital budgeting stem from the basic fact that a government is not a business. The purpose of government is not to maximize its profits, but rather to provide a framework within which individuals can maximize their own welfare. Therefore, use of business accounting methods based on profit maximization criteria may not always be appropriate in the public sector.

For instance, use of the capital budget to implement a rigid rule such as full debt financing of capital spending in all years would greatly reduce the flexibility thought to be necessary for the formulation of effective fiscal policy. Fiscal policy for the purpose of stabilizing short-run fluctuations in economic activity could only be accomplished by varying the level of capital spending from year to year. As the purpose of public capital formation is to improve long-run economic efficiency, a basic conflict between the short-run and long-run goals of government would arise.

For this reason, most advocates of capital budgeting have shied away from urging the adoption of fixed rules linking government capital spending and debt financing. Instead, the capital budget has been put forward as the best means of providing regular information concerning the amount and allocation of public investment. The case for the capital budget rests on its utility as a descriptive tool that sheds light on how public funds are spent. Before the capital budget can take its place as a useful source of public information, the difficult question of defining public investment must be resolved.

MACROECONOMIC EFFECTS OF DEFICITS

The simple version of the National Income Model taught in most first-year Economics courses suggests that governments are responding correctly to the current recession by allowing their deficits to increase. This model explains changes in aggregate income and employment as being due to fluctuations in total demand.[14] The danger is said to be that an initial fall in demand, with its negative consequences for income and employment, can lead to increased caution on the part of consumers and investors, which generates further reductions in demand. The behaviour of the Canadian economy during the 1929-33 period, when production fell by 30 per cent and the rate of unemployment rose from 3 per cent to 24 per cent,[15] is held up as a striking example of the consequences of this process.

According to Lord Keynes, whose theories form the basis of the National Income Model, governments should have shored up demand during the Great Depression by increasing their deficits. Government deficits represent direct injections of additional spending into the economy. To the extent that income generated by a government deficit is then spent by recipients, a deficit can have a 'multiplier' effect on aggregate demand far greater than the size of the deficit itself. While government deficits did rise during the 1930s, this was not due to a deliberate policy of stimulating demand. In fact, governments strove to contain deficits at what were viewed as manageable levels. This policy of restricting deficits has been blamed for helping to prolong the depression.

Some observers have drawn parallels between the current situation and the early years of the Great Depression. Between the second quarter of 1981 and the final quarter of 1982, real income in Canada fell by 6.5 per cent. The unemployment rate jumped from 6.9 per cent in August of 1981 to 12.8 per cent by the end of 1982. Fears have been expressed that the current climate of uncertainty is not conducive to a revival of private sector spending. If this is the case, then it may be argued that a further expansion of government deficits is necessary to prevent the recession from turning into a depression. According to this view, governments that heed calls for reduced deficits at the present time will be repeating the mistakes of the past.

More sophisticated modern versions of Keynes' original model also conclude that deficit spending can be an effective means of stabilizing aggregate demand. It should be kept in mind that Keynesianism does not imply a policy of permanent deficit spending. Rather, Keynesians assign a useful role to government deficits only when the level of private spending falls temporarily. By minimizing the contraction in total demand, a deficit helps to restore the level of confidence necessary for an eventual upturn in private expenditure. As income and employment return to their normal levels, the need for a government deficit disappears.

However, Keynesian economics has never commanded universal acceptance and has come under increasing attack in recent years. Opponents of Keynes reject his view that the economy can become stuck at an 'underemployment equilibrium.' Non-Keynesians tend to have greater faith in the ability of the economy to bounce back from a cyclical downturn.

This conflict is essentially over the flexibility of market prices. Keynesians believe that market rigidities may permit involuntary unemployment of productive resources to persist over long periods of time. Therefore, government action may be the only means by which the economy can be returned to full employment. Non-Keynesians argue that temporary fluctuations in the levels of production and employment are corrected by the automatic adjustment of market prices. According to this view of the world, fiscal stabilization is unnecessary and may even be counter-productive.

This broader debate over the nature of the market economy cannot be treated adequately in a brief survey paper.[16] Instead, this section focuses on critiques of deficit spending that have been made within the context of the simple, fixed-price model of the economy. The possibility that government deficits may 'crowd out' private expenditures and have no effect on aggregate demand is discussed. Reference is made to the possible effects of government deficits on the rate of interest, the exchange rate, and the consumption-savings decision. Additional topics covered are the link between deficits and inflation and the significance of forecasting for current policy choices.

Crowding-out

Opposition to government deficits is often based on fears that a higher deficit will drive up interest rates, thereby depressing interest-sensitive private expenditures. One of the components of private spending that is widely believed to be most negatively related to the rate of interest is investment. Investment in productive capital is a necessary ingredient for future economic growth. If a higher government deficit forces interest rates up, the resulting decline in investment will reduce growth potential over the longer run as well as offset any positive impact of the deficit on demand in the short run. It is the possible consequences of government deficits for future economic growth that many of their opponents find most disturbing.

This crowding-out argument can be demonstrated in the simple IS-LM model of the closed economy. The closed-economy model, which ignores imports, exports, and capital flows, is especially applicable to a country such as the United States, whose foreign trade sector is small relative to the domestic sector. Consequently, American economists have tended to debate the merits of deficit spending within the closed economy framework. Since this American debate has influenced Canadian attitudes toward deficits, it is worthwhile setting out the case against fiscal activism in a closed economy. The open economy case, which is more applicable to the Canadian situation, will be discussed in the next subsection.

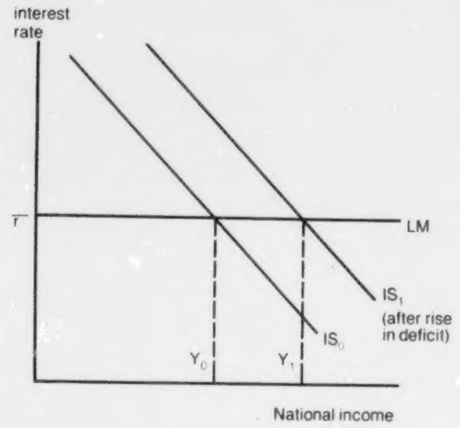
The simplest textbook versions of the Keynesian model assume a constant rate of interest. A fixed interest rate implies that the LM curve depicting points of money market equilibrium is horizontal. Given a horizontal LM curve, an increase in the government deficit, which shifts the goods market IS curve outwards, moves the economy to a new equilibrium at a higher level of national income (see Figure 2).

An early criticism of deficit spending was that the LM curve, far from being horizontal, is, in reality, vertical (or nearly so), because the demand for money is independent (or nearly so) of the rate of interest. A vertical LM curve means that an increased deficit merely pushes the economy to a new IS-LM intersection at a higher rate of interest, while having no effect on national income.[17] In other words, private spending in the form of interest-sensitive investment expenditure falls to offset exactly the increase in the deficit. This form of crowding-out, via the impact of a deficit on the rate of interest, is the version that should be most familiar to regular readers of business articles in today's newspapers.

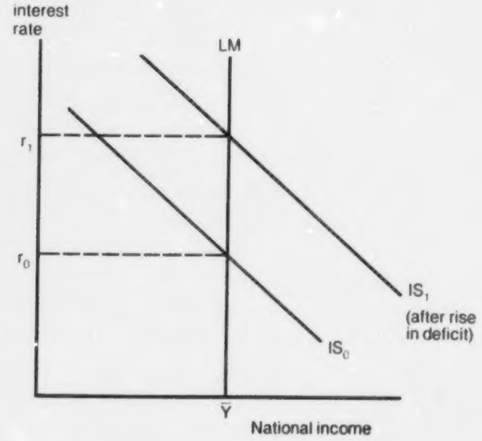
While the slope of the LM curve was a controversial topic during the 1960s, substantial evidence indicating that money demand is interest-sensitive has effectively put an end to this debate. In any event, the crowding-out argument does not rest solely on the possibility of a vertical LM curve.

Figure 2
Crowding-out in a simple IS-LM framework

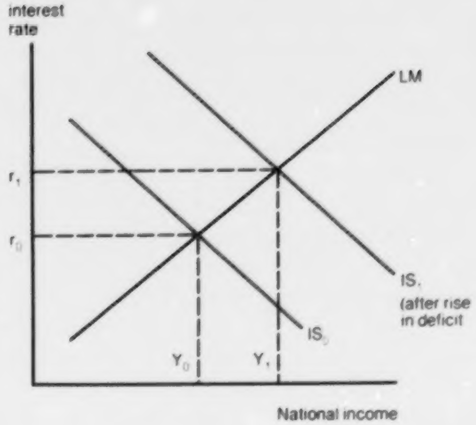
2a. Zero crowding-out and fully effective fiscal policy (horizontal LM curve at constant r)


interest rate
r̄
LM
IS₁
(after rise in deficit)
IS₀
Y₀
Y₁
National income

2b. Full crowding-out and completely ineffective fiscal policy (vertical LM curve)


interest rate
LM
r₁
r₀
IS₁
(after rise in deficit)
IS₀
Ȳ
National income

2c. Partial crowding-out and partially effective fiscal policy
(Positively-sloped LM curve)

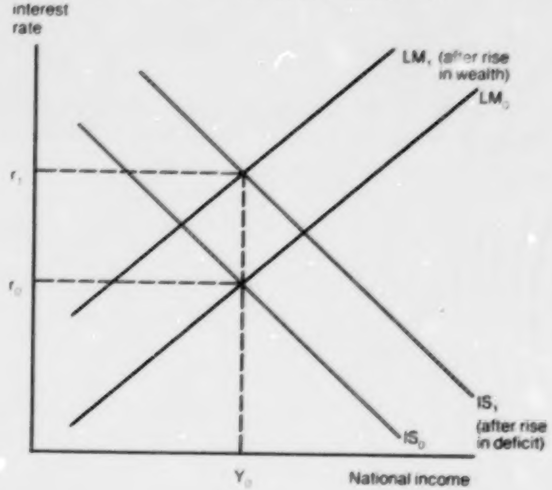


An increase in the deficit financed by the sale of government bonds to the public increases the stock of privately held wealth under the assumption that government debt is not treated as a liability by taxpayers (see page 39). Empirical evidence indicates that the demand for money is positively related to net wealth. Eventually, a deficit-induced rise in wealth causes the LM curve to shift upwards. One contention is that the end result of shifts in both the IS and LM curves is a new long-run equilibrium at a higher interest rate and the same level of national income.[18] Once again, the effect of an increased deficit on aggregate demand is neutralized by a fall in interest-sensitive private expenditures (see Figure 3).

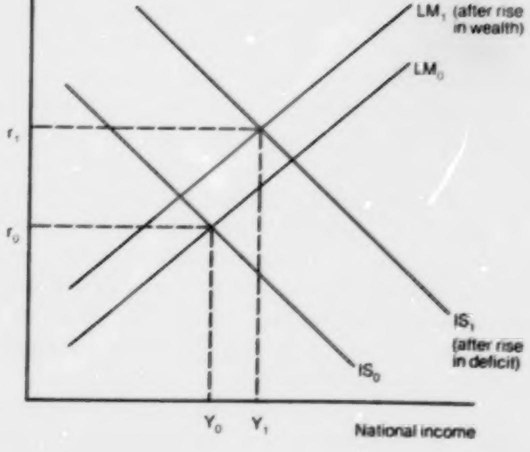
Whether or not long-run wealth effects ultimately neutralize the initial stimulative impact of a higher deficit is an empirical question. During the late 1960s, economists at the Federal Reserve Bank of St. Louis sought to test the impact of fiscal changes on U.S. national income. Econometric results derived from the St. Louis equations indicated that fiscal changes had no effect on income beyond the very short run. However, the statistical methodology underlying the St. Louis equations has been called into question. From the econometric point of view, the jury is still out on the

Figure 3
Long-Run crowding-out in the IS-LM framework

3a. Full crowding-out and ineffective fiscal policy


interest rate
LM₁ (after rise in wealth)
LM₀
r₁
r₀
IS₁ (after rise in deficit)
IS₀
Y₀
National income

3b. Partial crowding-out and partially effective fiscal policy


interest rate
LM₁ (after rise in wealth)
LM₀
r₁
r₀
IS₁ (after rise in deficit)
IS₀
Y₀
Y₁
National income

crowding-out issue in the United States.[19]

International capital flows: implications for crowding out

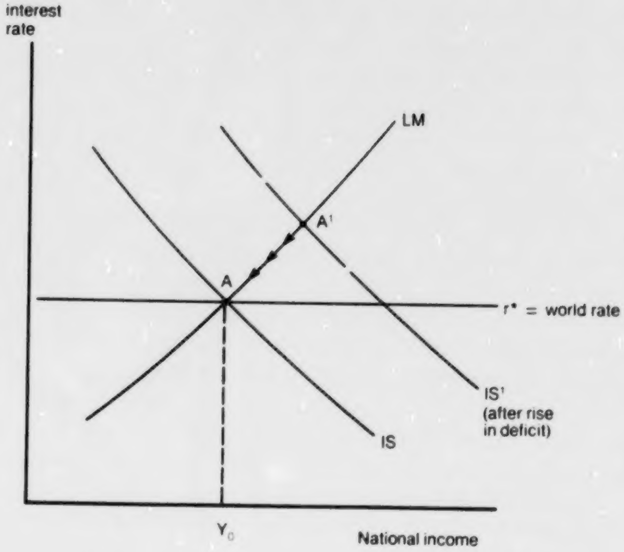
The previous subsection considered the crowding-out argument exclusively within the framework of a closed economy. Aggregate demand for Canadian goods is, of course, heavily influenced by foreign demand for our exports and by the division of domestic demand between Canadian products and foreign imports. Even if it could be proved conclusively that fiscal policy is effective in an economy closed to foreign trade, Canadian economists would still be faced with the task of gauging the impact of fiscal policy in an open economy.

If the result derived in the widely taught Mundell-Fleming model is to be believed, fiscal policy is impotent in a small, open economy under a flexible exchange rate system.[20] The key to the model lies in the definitions of the terms 'small' and 'open.' An open economy is simply one in which domestic residents are free to purchase foreign goods and assets, while foreigners are able to buy domestic goods and assets. Smallness refers to the fact that the economy is too insignificant a demander or supplier of internationally traded goods and assets to be able to affect their prices.

In other words, exports from a small, open economy such as Canada's must compete with products from other countries and cannot be priced arbitrarily without regard to world market conditions. Similarly, Canadian consumers must accept import prices determined on the world market. In addition, Canadian interest rates cannot deviate from interest rates prevailing in the rest of the world. If Canadian bonds are priced too high, both domestic and foreign holders will exchange their Canadian bonds for cheaper foreign assets. This will drive prices of Canadian bonds down to prevailing world levels. Conversely, if Canadian bond prices fall below world levels, increased demand for cheap Canadian bonds will push prices back to world levels. As long as no restrictions are placed on capital flows across international boundaries, interest rates in Canada are determined, not by domestic supply of and demand for bonds, but by world supply and demand.[21] It goes without saying that world market conditions are beyond the control of the domestic authorities.

The ramifications of smallness and openness can be illustrated in the IS-LM framework of Figure 4. Assume the economy is initially in equili-

Figure 4
Crowding-out in a small, open economy



brium, with the IS and LM curves intersecting at the world rate of interest, r^*. An increase in the government deficit tends to shift the IS curve outwards to IS', thereby putting upward pressure on the domestic interest rate. However, any upward movement in the domestic rate induces assetholders to switch out of foreign bonds into domestic bonds. The resulting capital inflow places upward pressure on the exchange value of the domestic currency in terms of foreign currencies. As the domestic currency appreciates, foreign demand for exports falls and domestic demand shifts towards imports at the expense of home goods. This shifts the IS curve back towards the initial equilibrium position.

The end result of the rise in the deficit is currency appreciation and deterioration of the trade balance, with no change in the level of national income. The speed at which all this takes place depends on how quickly bondholders react to deviations in interest rates. If capital is highly mobile, currency appreciation follows almost immediately after a rise in the deficit, with not even a temporary rise in income. Crowding-out occurs with the interest rate unchanged. In this model, a deficit affects the exchange rate, rather than the interest rate, and crowds out spending that is affected by changes in the exchange rate.

The obvious question is the extent to which the Mundell-Fleming model is applicable to the Canadian economy. Does Canada fit the small, open economy definition? Is capital so mobile between countries that no scope exists for changes in Canadian interest rates independent of movements in world rates?

In addition, it can be argued that the exchange value of the Canadian dollar is not fully flexible at the present time. Many observers accuse the Canadian government of attempting to restrict exchange rate fluctuations within a narrow range of its own choosing. It could be argued that fiscal policy can play an effective role under a managed floating system.

Finally, open economy macroeconomics has changed considerably since the Mundell-Fleming model was introduced in the early 1960s. The importance of expectations in the determination of exchange rates has been repeatedly emphasized in recent work. The simple version of the Mundell-Fleming model outlined above contains the implicit assumption that assetholders do not expect the fully flexible exchange rate to change over time. A more realistic view of exchange rate expectations could alter the conclusion that fiscal policy is ineffective under flexible rates.[22]

These considerations should not obscure the main lesson of the Mundell-Fleming analysis. No model can be expected to deliver absolute truths about such a complex organism as the economy. At most, models can be used to make broad generalizations about what seems to be true. What can be learned from the Mundell-Fleming model is that, in a flexible exchange rate system, fiscal policy is likely to have much less effect on income and employment the smaller the size and the greater the openness of the economy. In Canada, this is a lesson that cannot be ignored.

Bond financing vs. tax financing

Robert Barro, a leading American economist, has put forward yet another argument against fiscal activism. Barro's case against deficit spending rests on the assumed ability of taxpayers to forecast their expected lifetime tax liabilities. It has long been recognized that the stimulative impact of deficit spending depends upon the extent to which taxpayers realize that government debt issued to finance today's deficit must be serviced with higher taxes tomorrow. If taxpayers expect that their future tax liabilities will be increased as a result of bond financing of a current deficit, they will tend to increase current saving in order to prepare for higher taxes in the future. Thus, the stimulative impact on aggregate demand of a higher deficit will be offset by a shift towards saving and away from consumption expenditure.

At one time, the general consensus was that, while some public awareness of the link between future taxes and current deficits must be allowed for, full discounting of the future tax liability attendant upon bond financing is highly improbable. It was held to be unrealistic to assume that all taxpayers act on the basis of a fully worked-out lifetime plan. Furthermore, even if full rationality could be assumed, the ability of governments to postpone repayment by rolling debt over would mean that taxpayers should not expect to be liable for debt not likely to be retired until long after their deaths.

In his 1974 article entitled 'Are government bonds net wealth?', Barro argued that economic behaviour is affected by consideration of events beyond the expected lifetime of the individual, so long as concern exists for the welfare of descendants. If this is the case, rational individuals may be expected to set aside savings to pass on as bequests in order that their beneficiaries might meet tax liabilities resulting from past deficit financing.[23]

If the Barro model is a close approximation of reality, the effects of bond financing of government spending do not differ from those of tax financing. By levying taxes, governments force a reduction in private expenditures. With full discounting of future taxes, a substitution of bond financing for taxation reduces private spending by an equivalent amount as income is set aside to cover future tax obligations. Consequently, a change in the government budget position has no effect on aggregate demand. This proposition was dubbed the 'Ricardian equivalence theorem' because of its similarity to comments on the same subject made by David Ricardo, the great classical economist of the 19th century.[24]

Barro's achievement lies in his derivation of theoretical conditions under which full discounting is possible. Critics have not found flaws in the analytical structure of Barro's model. Rather, they have cast doubt on the practical relevance of the Ricardian equivalence theorem. The uncertainties facing individuals in the real world, however interested they may be in the well-being of their descendants, are said to be so great as to ensure that planning for future taxes is of only minor importance.[25]

Since criticism of Barro's work has focused on its practical plausibility, empirical testing would seem to offer the only basis for resolving this issue. Much of the statistical analysis of the Ricardian equivalence theorem has involved estimation of the aggregate consumption function. Unfortunately, a clear-cut answer has not yet emerged from the econometric literature. Results of some studies indicate that consumer spending does fall on approximately a one-to-one basis as government debt issue rises. This is the expected result if Barro's proposition holds in the real world. In other work, however, no consistent relationship between aggregate consumption and government borrowing is found.[26]

Before moving on, it might be instructive to examine within the IS-LM framework the 'Ricardian' argument that deficit financing is equivalent to tax financing. Supporters of the Ricardian equivalence theorem believe that a rise in the deficit will not affect national income. However, their argument is that any increase in the deficit is immediately offset by an equivalent rise in private saving, so that the position of the IS curve never changes. Full discounting of future taxes implies that government bonds are not treated as net wealth by the private sector, so that a change in the deficit does not affect the position of the LM curve either. The level of national income, the rate of interest, and the exchange rate are unaffected by a change in the deficit. Crowding-out occurs, not through the effect of a higher deficit on the interest rate or exchange rate, but via the direct impact of deficit financing on the consumption-savings decisions of rational individuals.

Deficits, monetary policy, and inflation

To this point, the possible effects of fiscal policy on income and employment alone have been discussed. As is evident from recent experience, macroeconomic policy can be set with another target in mind - the rate of inflation. Some critics of fiscal activism have taken the position that deficit spending, in addition to being an ineffective means of stabilizing aggregate demand, can do real harm by adding to inflationary pressures.

The most direct link between fiscal policy and the rate of inflation runs through the effect deficit spending can have on the rate of growth of the money supply. Up to now, analysis has been restricted to the effects of a government deficit financed by bond sales to the private sector. However, central government bonds can also be purchased by the central bank.[27] The end result of a series of transactions arising from government spending financed by bond sales to the central bank is an increase in the reserve holdings of the private banks. Increased bank reserves can be used to back an expanded volume of demand deposits, which are a principal component of the money stock. A greater supply of money, all other things being equal, puts upward pressure on the general level of prices.

It is important to recognize that there is no necessary connection between government deficits and monetary policy. Central banks in most countries enjoy some degree of independence. The Bank of Canada, for instance, is under no legal obligation to purchase bonds from the federal government. Moreover, when the Bank does buy bonds, it remains free to take steps that neutralize the effect of its purchases on the money supply.

Nevertheless, many observers attribute the upsurge in inflation rates in Canada and elsewhere during the 1970s to accommodation by the central banks of large government deficits. It is argued that the nominal freedom granted to central banks is, in actual practice, a facade. Government officials, motivated by political concerns, are said to exert considerable pressure on central banks to finance budget deficits.[28]

Since the alleged link between deficits and inflation is not a theoretical necessity, but rather an alleged probability, empirical evidence of such a relationship would seem to be required. In Canada, attention has been focused on the early 1970s, when double-digit inflation made its first appearance. This period was also marked by a drift towards larger federal deficits, large purchases of government bonds by the Bank of Canada, and high annual rates of money growth. By late 1975, concern about the inflationary effects of federal deficits had became so great that a group of prominent Canadian economists sent a letter to the prime minister urging a reduction in the federal deficit. However, research done at the Conference Board of Canada by Robert Crozier indicated that the Bank of Canada had retained control over monetary policy and that there had been no causal connection between deficits and the rise in inflation during this period.[29] The subsequent ability of the Bank to implement its policy of gradually reducing the rate of monetary growth, in spite of continued large deficits, tends to bear out the conclusions of the Crozier Report.

Another theoretical basis for linking deficits and inflation has emerged. Thomas Sargent and Neil Wallace, two prominent American economists, have recently developed a model in which continued deficits eventually force an inflationary expansion of the money supply. Their result hinges on the assumption that there exists 'an upper limit on the stock of bonds relative to the size of the economy.'[30] If large deficits continue for so long that this limit is reached, the government has no recourse but to finance continued deficits by money creation. Furthermore, if expectations of future inflation play an important role in current price formation, inflation may remain high, despite an anti-inflationary monetary policy, because current high deficits lead rational agents to believe that an inflationary policy will be adopted in the future.

Forecasts: implications for policy prescriptions

This section is more speculative than would normally be appropriate in a survey paper. Nevertheless, we believe that, at the present time, different interpretations of forecasts have important implications for policy prescriptions.

This paper has described several theoretical structures, each of which is built upon a particular view of the way the economy works. Much of the deficit debate is a dispute as to which theoretical structure best represents today's economy. Apart from this theoretical dispute, some of the policy controversy rests upon a disagreement concerning forecasts of economic trends.

Indications are growing that the economy may be pulling out of the recession. Given these indications, one may favour deficit reductions; and one may predict that recovery will automatically reduce the deficits as revenues increase and recession-related expenditures fall. Recent movements in the Consumer Price Index suggest that inflation has fallen dramatically. Given these movements, one may forecast lower interest rates and lower deficits as a result of smaller interest payments on outstanding government debt. People who believe these optimistic forecasts will not advocate larger budget deficits. In fact, such observers may argue for tax increases if they believe that structural deficits currently exist.

On the other hand, one may point out that current indications of recovery are not widespread. For example, business investment in plant and equipment has not yet shown signs of recovery. Throughout the depression of the 1930s, noticeable increases and decreases occurred in various economic indicators. It may be that current positive developments will be overcome by relapses, as happened throughout the 1930s. It can be argued that forecasters use models in which reaction patterns and relationships are those of the 1970s, and that we cannot expect these traditional patterns and relationships to hold in the current recession.

In particular, it may be that businessmen have been so buffeted by their 1979-83 experiences that they will not increase their investments in either inventories or fixed capital as confidently as they did in the 1970s. Small current signs of recovery may fail to stimulate investment. Consumers have been shocked by the recent inflation, interest rates, and unemployment to the extent that their confidence and purchasing patterns may not be easily restored. Hence, it can be argued that governments should now expand their deficits as the best path to recovery.

One's prediction of the future course of the economy will no doubt affect one's judgment with respect to the 'crowding-out' controversy. If one expects that business investment and consumer spending will be depressed for the next couple of years, then one may believe that larger deficits can be financed domestically with little 'crowding-out' of any type. On the other hand, if one expects that recovery is imminent, then one may fear that larger deficits could have negative 'crowding-out' effects at a critical turning point.

In fact, one's forecasts may affect one's attitude towards the various theoretical structures presented above. It is quite possible that a particular theoretical structure will describe the economy well at one stage and yet be less appropriate when basic underlying trends have changed. It is even possible that public knowledge and understanding of economic issues are increasing to such a degree that business and consumer reaction patterns are changing. In particular, reaction times may be shorter than in earlier days. Hence, economic policy may have to be based on expectations of a higher level of public rationality and a greater awareness of probable public response to that economic policy.

Several other extremely important elements of the debate depend on one's forecasts. To argue for a change in the deficit is not particularly helpful unless one attaches some approximate dollar figure to one's recommendation, unless one presents a time profile for this action, and unless one suggests some guidelines for the composition of fiscal changes. With respect to each of these elements, one's view will be seriously affected by one's forecasts as well as one's theoretical position. These elements probably deserve more attention than they have so far received in the current deficit debate.

This uncertainty surrounding forecasts of future economic trends forms the basis of an additional argument against deliberately increasing the deficit to stimulate the economy. It may be argued that the very fact that forecasts can vary so widely demonstrates that existing knowledge of how the economy operates is far from complete. Fiscal 'fine-tuning' can only succeed if policymakers can be sure of both the state of the economy when policy changes are made and the impact of these changes over time. If the future course of the economy is uncertain, it may be that by the time a policy intended to deal with a particular situation takes effect, conditions will have changed so much that the policy will have a perverse impact. This point of view is summed up by Martin Feldstein, Chairman of the Council of Economic Advisers in the United States, who wrote:

> We therefore do not have and may never be able to have enough precise information to be confident that discretionary fiscal changes can reduce the average amplitude of the business cycle...The extent of our ignorance and the potentially powerful effects of fiscal changes imply that the magnitude of discretionary fiscal changes should be very limited.[31]

CONCLUSION

It should be clear by now that the two broad aspects of the deficit issue cannot be discussed separately. Attitudes toward the proposed adjustments to conventional deficit measures are based upon particular views of the macroeconomic effects of deficits.

For example, those who believe that fiscal policy cannot affect income and employment are not much interested in the full-employment budget position. Obviously, there is no need to gauge the stance of a policy that is believed to be entirely ineffective. For those who believe that deficits do real damage by adding to inflation and/or by reducing long-run growth potential, it is the actual deficit to be financed, rather than the hypothetical full-employment deficit, that is the variable of interest.

At the opposite pole, those with an abiding faith in the possibility of fiscal stabilization attach a great deal of weight to the full-employment budget. Moreover, fiscal activists are not overly concerned by the computational difficulties involved in full-employment budgeting. In the Keynesian framework, the primary purpose of the full-employment budget is to serve as an indicator of deliberate shifts in the fiscal stance of government. It is the change in the full-employment budget position from one year to the next, rather than the precise measurement in a single year, that is of greatest significance.

As long as a reasonably reliable method of calculation is applied consistently to all years, it should be possible to follow the course of discretionary fiscal policy over time. In Tables 4 and 5, for example, different groups report slightly different numbers for the full-employment budget positions in each year. Yet disagreement concerning the direction of change from year to year is rare. The course of federal fiscal policy during the 1970s can be discerned by looking at any one of the three sets of estimates reproduced in Table 4.

Between these two camps are those who believe that deficit spending can soften the impact of a recession, but that it should be avoided during a period of recovery. This view of fiscal policy allows a place for the full-employment budget. The key question is whether there exists a 'structural' deficit that may cause crowding-out when income and employment begin rising. In this framework, an accurate estimate of the full-employment budget position at a particular point in time becomes much more important.

Divisions over inflation adjustment of the budget are not so sharp. Inflation adjustment is compatible both with a belief in full crowding-out and with faith in effective fiscal policy. The assumption that assetholders seek to maintain real wealth by channelling inflation premium payments directly into additional saving is not exclusively identified with any particular school of thought. If this assumption were accepted, Keynesians would expect only the inflation-adjusted deficit to affect aggregate demand. Those who put forward a version of the crowding-out hypothesis would expect the inflation-adjusted deficit, not the entire unadjusted deficit, to have crowding-out effects.

Fiscal activists might combine the full-employment and inflation adjustments. It is possible for a change in the full-employment budget position to be entirely due to a change in inflation premium payments. If these payments flow directly into private saving, such a change would not affect aggregate demand. In addition, since the size of the inflation premium is determined by market expectations, expenditures on inflation premiums cannot be quickly altered at the discretion of the government. Hence, a change in the full-employment budget position adjusted for inflation would seem to be a more accurate indicator of a shift in discretionary fiscal policy than a change in the unadjusted full-employment budget position.

Of equal importance are considerations stemming from the open nature of the Canadian economy. In fact, the choice among open-economy macroeconomic viewpoints determines which deficit is considered important. Acceptance of the Mundell-Fleming model as a reasonable framework for analysis of the Canadian economy implies that Canadian deficits, however measured, are unimportant in terms of their effects on income and employment. According to this view, the government deficits that affect Canada for good or ill are those of countries large enough to influence world market conditions. Since the world's largest economy, the United States, is also our largest trading partner, it is the American deficit that should be of most concern to Canadians.

Attitudes toward the American deficit would then depend upon closed-economy macroeconomic analysis. Those who believe that deficits can stimulate demand in a large economy might look toward a higher U.S. deficit to raise American demand for Canadian goods. On the other hand, if expectations are that deficits of large countries push up world interest rates, then high American deficits should be viewed as a threat to Canadian investment spending. Alternatively, those who adopt Barro's 'Ricardian' view believe that deficits alter the composition of aggregate demand between private and public expenditure, but have no effect on interest rates. Thus, the U.S. deficit would be viewed as a threat only insofar as American governments probably have a lower demand for Canadian goods than does the American private sector. As Canada has little or no influence on American fiscal policy, the Mundell-Fleming framework implies that Canadians cannot avoid the consequences of American deficits, whatever they may be.

Recommendations concerning current Canadian deficit policy are thus based on views of how the economy works and of where deficits are at the present time. For example, Keynesians interpret projections showing that the inflation-adjusted, full-employment budget position of the consolidated government sector will be in surplus in 1983 as evidence that Canadian governments are not doing enough to end the recession.[32] Keynesians argue that the quickest route to recovery and lower deficits in the future is via deliberate expansion of deficits now, when demand is weak and future prospects are uncertain.

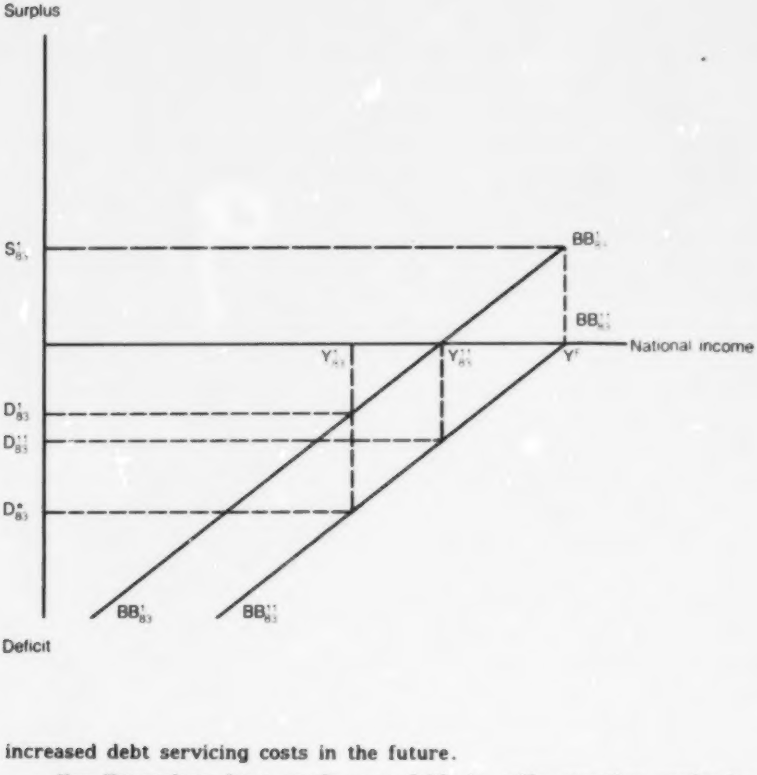
This argument can be illustrated by a graph similar to the one introduced in Figure 1. Current projections are for national income in 1983 to be considerably below potential GNP at full capacity. As a result, the consolidated government sector will likely run up a considerable deficit even on an inflation-adjusted basis. In Figure 5, suppose that D^{1}_{83} and Y^{1}_{83} on budget line BB^{1}_{83} are the actual deficit and national income levels realized in 1983, if current tax rates and government spending plans remain in place. S^{1}_{83} is the inflation-adjusted, full employment surplus implied by this fiscal regime.

Keynesians propose that the federal and provincial governments co-ordinate a general reduction in tax rates and/or an increase in spending plans. In other words, Keynesians would like to see Canadian governments shift to a new budget line, BB^{11}_{83}. They contend that such a program of fiscal stimulation would increase national income to Y^{11}_{83}, above the level that would be achieved if no action were taken. While the deficit might increase slightly to D^{11}_{83}, such an increase would not be as large as might be feared, because the fiscally-induced rise in national income would generate extra tax revenues and lower unemployment insurance payments. Furthermore, the increase in the deficit would lead to lower deficits in the future. The increase in income from Y^{1}_{83} to Y^{11}_{83} would restore consumer and business confidence. National income would continue rising towards Y^{F}. Deficits would fall continuously as Canadian governments moved up along BB^{11}.

Keynesians fear that if no action is taken, the economy will become trapped at a level of output far below Y^{F}. The current recession is much deeper than any cyclical downturn experienced in the recent past. Some Keynesians argue that optimistic forecasts of an imminent upturn in private sector spending are based on the pattern of past business cycles. In the context of Figure 5, Keynesians are concerned that if the economy is allowed to remain at Y^{1}_{83} for long, private sector confidence may deteriorate further. The result would be a further fall in national income and a further increase in the deficit.

Those who believe that fiscal policy in Canada cannot affect income and employment vigorously oppose the Keynesian prescription. According to these critics, economic recovery cannot be artificially induced by governments. In other words, a shift from BB^{1}_{83} to BB^{11}_{83} would leave national income unchanged at Y^{1}_{83}. The result would be a much larger deficit of D^{*}_{83} and consequently a greater government debt total and

Figure 5
Inflation-adjusted budget position of the consolidated government sector



increased debt servicing costs in the future.

Non-Keynesians have much more faith in self-correcting mechanisms built into the economy. Recent reports that economic recovery is already underway are said to be fully consistent with historical experience of business cycles. According to those who oppose deliberate expansion of deficits, the proper government strategy is to allow the private sector to recover on its own. National income will gradually rise and government deficits will slowly fall. Opponents of fiscal activism believe that deliberately increasing deficits now could even slow the economy's return to Y^F by delaying recovery in the private sector.

Of course, the deficit debate cannot be resolved in this paper. Our purpose here has been to set out in simple terms the arguments made by both sides. We hope it has been made clear that both sides can call upon economic theory to support their positions, and that the appropriateness of various arguments may change over time as shifts occur in the state of the economy and the nature of public perceptions.

NOTES

1 See Bird (1979, 45-55), Canada (1983, 23-5), and Statistics Canada (1975, 163-93) for thorough explanations of the differences between the various accounting frameworks.

2 See Bossons and Dungan (1983, 14-15) for a discussion of this issue. Of course, it can be argued that changes in the amount of deferred taxes that will be paid in the future when RRSPs are cashed in also affect the net liability position of the government. It may be that trying to find an all-encompassing measure acceptable to everyone is impossible.

3 This figure has been borrowed from Ott and Ott (1978, 90).

4 See Okun and Teeters (1970, 77-116), Solomon (1962, 105-11), and Tarshis (1979) for arguments in support of full-employment budgeting.

5 See Canada, Economic Review (1978-82, various issues) for explanations of the methodology used by the Department of Finance in calculating what are called the 'cyclically adjusted' budget positions of the federal and consolidated government sectors. For a full description of a more complex methodology, see de Leeuw, et al. (1980). The methodology discussed in that article is used by the Council of Economic Advisers to make official estimates of the full-employment budget position of the United States federal government.

6 The 'cyclically adjusted' budget concept employed by the Department of Finance is not exactly equivalent to the conventional full-employment budget concept. The Department decided that the difficulties involved in estimating the full-capacity level of national income were too great. Instead, the Department chose to calculate the 'cyclically adjusted' level of national income, which is what GNP in any given year would have been had the economy followed a trend growth path. However, this technical difference is not of great import. The motivation for computing the 'cyclically adjusted' budget position coincides with the rationale underlying full-employment budgeting.

7 This type of explanation of the meaning of inflation adjustment can be found in Bossons and Dungan (1983, 16).

8 See Tobin (1980, 56), Barber (1979, 44-7), and Barro (1981, Ch. 6) for arguments in favour of correcting conventional budget measures to remove the effect of inflation.

9. The brief explanation in this paper of why the expected rate of inflation, rather than the actual rate, might be used to perform the inflation adjustment is a simplification of the reasoning developed by Jump

and others. For a full exposition of the Jump position see Jump (1980b, 990-1004).

10. It should be made clear that the inflation-adjusted budget position presented over a number of years is not a measure of government surpluses and deficits in constant or base-year dollars. The inflation-adjusted budget position in any given year is calculated in the dollars of that year. It can be broadly interpreted as what the budget position would have been had there been no inflation during the year in question. Thus, inflation adjustment can transform unadjusted deficits into inflation-adjusted surpluses. (See the 1971 and 1972 figures for the federal government and the 1976, 1979, and 1980 figures for the consolidated government sector reported in Table 6.) In such a case, the unadjusted deficit is less than the amount by which inflation depreciated the real value of the debt. Or, from the alternative point of view, the reported deficit is less than government interest expenditures stemming from inflation premiums.

11 See Comiez (1966) and articles by Eckstein, Musgrave, and Shoup in Review of Economics and Statistics (May 1963).

12 See Ontario (1978, 1980, 1982).

13 Ontario (1982, 4).

14 See Lipsey, et al., (1982, ch. 28-34) or any other standard introductory text for a simple presentation of the National Income Model.

15 Figures are taken from Urquhart, ed.(1965, 61, 132).

16 For a modern 'Keynesian' view of price adjustment, see Lipsey, (1981, 545-76); For a modern 'non-Keynesian' view of price adjustment, see Lucas (1980).

17 The IS curve shows the combinations of interest rates and income levels at which withdrawals from aggregate demand (savings, taxes, and imports) are equal to injections (investment, government spending, and exports). The IS curve is negatively sloped because investment is negatively related and savings are positively related to the rate of interest, while savings rise due to an increase in income by more than does investment. The LM curve shows the combinations of interest rates and incomes at which money demand is equated to a given money supply. It is positively sloped because money demand falls as the rate of interest rises, but increases as income rises. The intersection of the IS and LM curves is the only interest-income combination at which both the money market and the goods market are in equilibrium. For a full exposition of the IS-LM framework, see Parkin (1982, ch. 18-20). Throughout our analysis, the extreme assumption that the price level is fixed will be maintained. No distinction between nominal and real income will be made. This is obviously a highly unrealistic assumption; however, as will be seen, the various arguments against fiscal activism can all be made within the framework of the fixed-price IS-LM model.

18 Of course, an increase in net wealth also shifts the IS curve outwards. See Infante and Stein (1976) for a full presentation of the argument that the end result of all shifts in both the IS and LM

curves due to an increased deficit is likely to be no change in national income. See Blinder and Solow (1973) for an opposing argument.

19 The original presentation of the St. Louis equations appears in Andersen and Jordan (1968, 11-24). Questions concerning the methodological soundness of the St. Louis tests are discussed by Modigliani and Ando (1976, 30-42).

20 The original presentation of this model is to be found in Mundell (1963, 475-85). A clear, concise exposition of the model appears in Dornbusch (1980, 193-9).

21 Casual observation would seem to contradict the basic premise of the Mundell-Fleming model, namely that international capital mobility forces the equalization of interest rates across countries. For example, the November 1982 issue of OECD Main Economic Indicators reports that comparable short-term interest rates during September 1982 were 12.73 per cent in Canada, 7.85 per cent in the United States, 3.25 per cent in Switzerland, and 17.72 per cent in Italy.
However, these interest rate deviations can be reconciled within the Mundell-Fleming framework as being due to expectations concerning future exchange rate movements. What must be remembered is that rates of return on various assets are evaluated by a prospective purchaser in terms of some common currency, normally the domestic currency of the country of residence. For a Canadian, the rate of return on a foreign-denominated asset is equal to the rate of return in terms of the foreign currency plus the rate of change of the value of the foreign currency in terms of Canadian dollars expected over the holding period. Thus, Canadians holding U.S. dollar-denominated bonds paying 8 per cent, even when Canadian bonds are available at 13 per cent, are not acting irrationally so long as their expectation is that the value of the U.S. dollar in terms of Canadian dollars will rise by 5 per cent. Perfect capital mobility does not imply that $r_{Cdn.} = r_{U.S.}$ at all times, but that $r_{Cdn.} = r_{U.S.}$ + expected rate of change of the value of the U.S. dollar in terms of Canadian dollars.

22 See Frenkel and Mussa (1981) for a brief survey of modern theories of open macroeconomics.

23 See Barro (1974, 1095-1117; and 1981, ch. 6).

24 See Ricardo (1951).

25 See Tobin (1980, 49-72) for a critique of Barro's model.

26 The econometric evidence in favour of the Ricardian equivalence theorem is summarized in Tanner (1979, 317-21). Evidence against full discounting is presented in Tobin and Buiter (1979).

27 Since the Bank of Canada does not deal in provincial government securities, there is no direct link between provincial deficits, provincial borrowing, monetary policy, and inflation. The analysis in this section refers exclusively to federal deficits.

28 The most forceful exposition of this view can be found in Buchanan and Wagner (1977). These two American economists believe that democratic societies are plagued by a built-in tendency towards money-financed

deficits. The work of Buchanan and Wagner has been cited prominently by supporters of the balanced-budget amendment that recently came before the U.S. Congress.

29 See Crozier (1976) for a summary of the Crozier Report. Also see Canadian Public Policy (1977) for articles presented at a symposium on deficits and inflation.

30 Sargent and Wallace (1981, 4).

31 Feldstein (1982, 17-8).

32 For example, see Bossons and Dungan (1983).

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Government deficits, inflation, and future generations

Franco Modigliani*

I have three main points to make in this paper. The first is that current deficits are not a major cause of inflation; on the contrary, I shall argue that inflation is a major cause of deficits. The causation goes from stagflation to deficit, not the other way around.

Next, I want to argue that deficits are, nonetheless, a bad thing. They may not be bad in the short run, under some circumstances, but if they continue in the long run, they have serious consequences.

Finally, I propose to establish that deficits are not the cause of our current trouble, despite the fact that they are bad, for the simple reason that there are scarcely any deficits. That is, in terms of that deficit which is harmful, there are very few deficits of any significance at this time.

Let me begin by making it clear why we are so concerned with deficits. Figure 1 shows the behaviour of deficits in the United States. The top line shows the U.S. national debt for 1946 alone, and then the rapid and finally precipitous rise in that debt from 1969 on. It shows how, as Mr. Reagan was taking office, the national debt was just crossing the $1 trillion line. Mr. Reagan told us that if the debt were stacked in dollar bills it would reach the moon, or some such gruesome thing. Of course, since then, his administration has proceeded to bigger and bigger deficits, and one can see from the projections for the future, shown by the broken lines, that the stack is really going beyond the moon, towards Mars. The top line of Figure 2 (I will come back to the rest of the figure later) shows roughly the same thing, but in terms of the flow of deficits rather than the stock of debt. One can see how the current deficit took off

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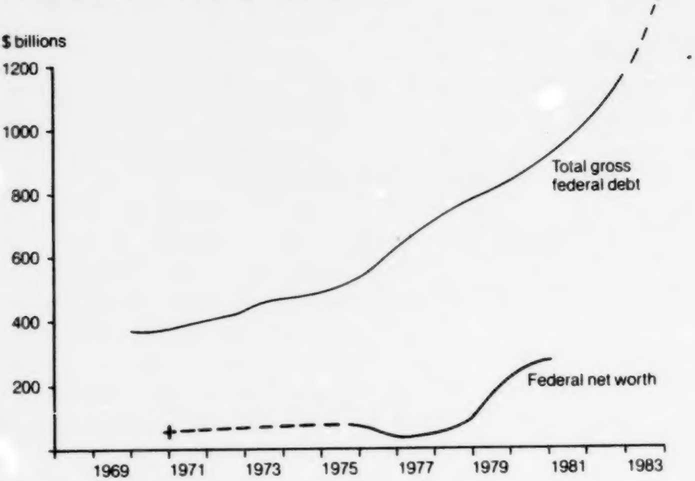
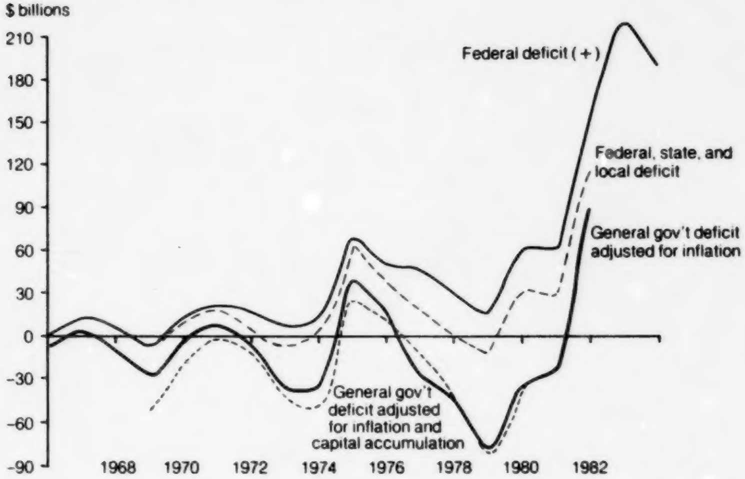
Figure 1
U.S. federal government debt and net worth



somewhere in the late seventies and, like the national debt, is also going through the ceiling. These huge deficits have been connected, in many minds, with our current deep economic problems - with the problem of stagflation. Figure 3 may help to explain why. The top panel again shows the deficits, but this time by five year periods. It shows that we had small deficits right after the Second World War, but that beginning in the late sixties deficits got bigger and bigger. As this happened, the next panel shows, we went from little inflation to more and more inflation. At the same time, as the last panel shows, productivity growth, which had been high, became small, zero, and finally negative.

Figure 4 draws a similar picture from the experience of nine major OECD countries. The height of the first column in the upper panel shows the annual average deficit (if above the horizontal line) or surplus (if below) for each country during the 1960s. The second column relates to the period 1975-80. It is apparent from the columns that in the sixties there were surpluses almost everywhere. Then came the seventies, and almost everywhere deficits replaced surpluses. The columns in the bottom panel represent inflation in the same periods. It is apparent that, as

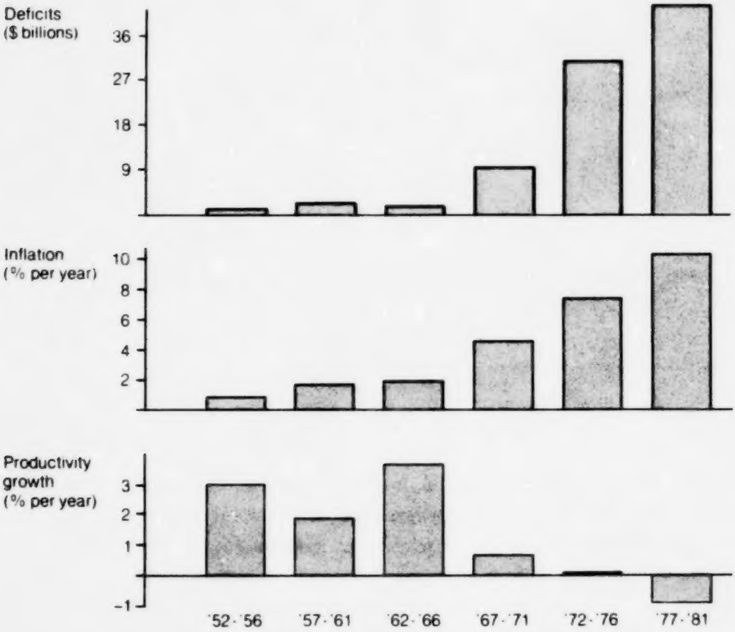
Figure 2
U.S. Government deficits with adjustments



deficits grew everywhere, so did inflation. Furthermore, the growth of inflation was greatest in Italy, where the deficit went way up, and in the U.K., where the budget went from a large surplus to a substantial deficit. Again, it seems as though deficit goes with inflation. The connection looks impressive, and it may have inspired the story that Reagan told the American people when he took over. The problem we have, according to Reagan, is that the government spends too much. As it spends more and more, it finds that it cannot increase taxes any further, because people cannot take it. Consequently, it starts running a deficit - it resorts to the printing press. The printing press creates inflation, and inflation creates disruption, depression, and low productivity. That is the mechanism. In my view, this argument is almost entirely fallacious.

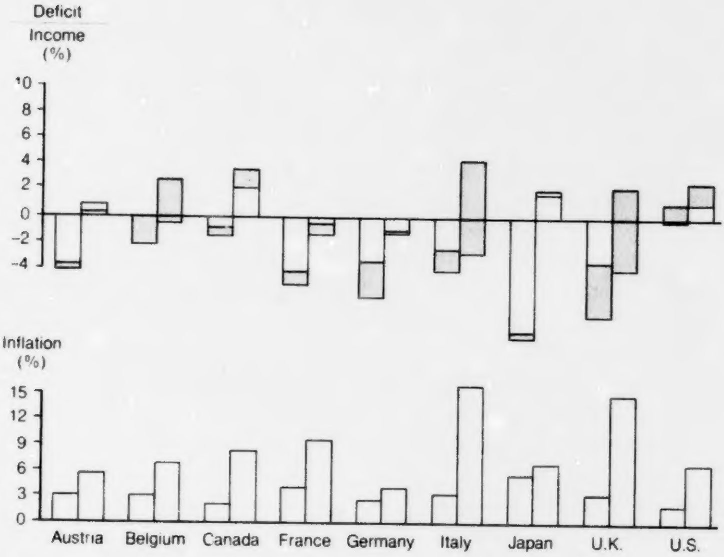
The first thing that I want to examine is the relation between deficit and inflation. There is absolutely no reason to think there is association between the two, at least in the sense that deficit implies recourse to the printing press which, in turn, means inflation. We have to remember that in all reasonably developed countries the government finances its deficits by selling bonds, not by printing money it cannot print. Money is printed

Figure 3
Federal deficits, inflation, and productivity growth in the United States (5-year intervals)



by the central bank, which decides how much government debt and other assets it wants to buy with it. There is no mechanical connection between running a deficit and creating money supply, and we have countless illustrations of the lack of such a connection. Just think, for example, of what happened in the United States in 1982. The deficit was enormous; it was well over $100 billion. Yet the central bank expanded its monetary base by only about $10 billion. Furthermore, this increase was less than it had been in years when the government deficit was smaller. Of course, in an underdeveloped country, one that has no financial markets, the government may sometimes have no way to sell bonds except to the central bank. Even when this does occur, one suspects that there is a will to

Figure 4



finance the deficit by inflation. But we are not concerned with primitive countries. In general, in developed countries there is no simple connection between deficits and money creation.

If the deficit is not a cause of inflation, is the deficit otherwise so bad? The issue of whether the deficit is bad, the issue sometimes referred to as crowding-out, is one of the classic issues that economists have enjoyed debating for several centuries. Many reputations have been made and destroyed in the course of that debate. There are essentially four views relating to the question of whether a government deficit is a burden on anybody, particularly whether it is a burden on future generations. These can be labelled (i) the 'naive' view that there is a burden, (ii) the 'naive' view that there is no burden, (iii) the 'sophisticated' view that there is a burden, and (iv) the 'super-sophisticated' view that there is no burden after all. Let me go over these four views quickly.

The naive view that there is a burden is the view of the man in the

TABLE 1
Data used in Figure 4

Country	Central government saving ratio[a]		Inflation[b]		Correction to the reported deficit[c]	
	1960-9	1975-9	1960-9	1975-9	1960-9	1975-9
Australia	0.050465	0.013353	0.024045	0.117895	0.011089	0.027738
Austria	0.037609	-0.010345	0.033976	0.057454	0.003478	0.008099
Belgium	-0.001391	-0.029698	0.031556	0.070521	0.021515	0.034553
Canada	0.003766	-0.037943	0.022407	0.084385	0.011234	0.016414
Denmark	0.073913	-0.01	0.054386	0.092829	0.009158	-0.014876
Finland	0.078771	0.054062	0.046312	0.115629	0.004886	0.002821
France	0.041526	0.004055	0.041855	0.09777	0.010221	0.009494
Germany	0.03152	0.005045	0.027447	0.041678	0.003097	0.00045
Greece	0.016939	-0.021731	0.023773	0.13601	0.001757	0.004615
Ireland	0.009101	-0.04746	0.043744	0.148322	0.036695	0.068093
Italy	0.024045	-0.04557	0.037764	0.163895	0.017369	0.073298
Japan	0.090176	-0.022078	0.055875	0.071025	0.003517	0.001854
Netherlands	0.050697	0.013545	0.040377	0.069184	0.01856	0.017083
Norway	0.07443	0.068906	0.037337	0.085353	0.010968	0.028107
Portugal	0.008798	-0.02356	0.025933	0.218809	0.003291	0.027861
Spain	0.036677	0.021976	0.058174	0.184303	0.014329	-0.002334
Sweden	0.051581	-0.006825	0.037589	0.101621	0.012383	0.030878
Switzerland	0.020921	0.016528	0.037852	0.029977	0.004876	0.002818
United Kingdom	0.035459	-0.023902	0.037146	0.152347	0.04289	0.06449
United States	-0.010934	-0.028794	0.022621	0.070369	0.012292	0.01777

a Shown in upper graph of Figure 4; b Shown in lower graph of Figure 4; c Shown by distance between the upper and lower limits of the shaded bars in the upper graph of Figure 4.

street. It rests on the notion that the debt of a government is just like the debt of a family - in the future you will have to pay the interest on it and to repay the principal, and that will curtail your future ability to consume. The same must be true of the government too: a government debt is, therefore, bad in the sense that it 'mortgages' the resources of future generations.

The naive no-burden view claims that the first view is all nonsense because the debt of the family is a debt due outside the family, but the debt of the government is due inside the country - we owe it to ourselves. Certainly, future generations will have to pay interest on the debt, but future generations will also receive that interest. All that takes place is a transfer from one group to another. According to the eighteenth-century French economist, le Chevalier de Melun, the public debt is like the debt of the left hand to the right hand, which in no way weakens the body. In other words, what matters is disposable income, or income produced minus taxes paid, plus interest received. When you raise the taxes and pay the interest, these two flows cancel out, and disposable income will not be affected.

One other way of supporting the no-burden argument is to say that it is impossible for this generation to eat the wheat of future generations. We can only eat the wheat we produce. Thus, we cannot shift the burden from the present to the future.

Next comes the sophisticated view that there is a burden. In essence, this view says that we can, indeed, affect future output. We can affect it by the amount of capital we bequeath to the future. Whenever the government runs a deficit, it finances that deficit by tapping current saving that would otherwise have gone into investment. Therefore, investment is reduced. Investment is a source of income for the future, and that income has been lost. The disposable income argument is false, for while it is true that when we have a deficit one hand pays the other, if we did not have the deficit one hand would receive not from the other but from the capital that produces income. Therefore we have lost the income that the capital would have produced.

This argument is sound, except that one may wonder whether the deficit's effect on investment might not be made up later. How do we know that the loss is permanent? It is useful at this point, I think, to fall back on another way of looking at the issue, which I refer to as a life-cycle perspective.

The life-cycle hypothesis (LCH) is, essentially, a model of the determinants of aggregate wealth. There used to be a view that the wealth we see around us was something we had inherited from the past - that was how the wealth came to be here. About thirty or forty years ago, the work I did on the life cycle pointed out that there was no need of bequests to explain all the wealth that is in existence, for it could easily be generated by 'hump saving' - that is, people saving currently for later expenditure and for retirement. All that happens is that the same physical assets change hands from the old who are selling them to consume to the young who are accumulating; you do not need transfers by bequest at all.

In a more general formulation, one may expect that wealth is generated in part by bequests and in part by life-cycle saving. In any event, this model tells us that the amount of wealth that exists in society is determined basically by society's income. That income determines both how much we allocate to the future and how much may be bequeathed. Wealth may also be influenced by forces such as income growth and population structure, but what is important is that one can rule out the proposition that the amount of wealth that society wishes to hold is systematically related to the size of government deficit. This means that a debt occupies a portion of the wealth that people would wish to hold, and thereby reduces the portion of wealth available to finance capital. So if people were to hold in wealth, say, four times income, and if there were no debt, then capital would be four times income. But if there were debt equal to one times income, then the available capital would be only three times income. Essentially, then, what we have here is another way of looking at the crowding-out phenomenon. The government deficit crowds out capital because the desire for wealth is satisfied by the government debt instead of being satisfied by productive physical capital.

This way of looking at things has many convenient aspects - for instance, it provides a measure of the overall burden of the national debt. Suppose a country has a deficit of $1 trillion. What is the burden, in terms of diminished capital, that this deficit imposes on future generations? It is equal to the return on the amount of capital it displaces. Now, according to LCH, $1 trillion of government debt should tend to displace $1 trillion of capital. If the interest rate is, say, 5 per cent per year, then the loss is essentially 5 per cent of $1 trillion, or $50 billion a year. In other words, to a good approximation, the flow of the burden can be measured by the annual interest paid on the national debt.

The basic argument also suggests its limitations and qualifications. First of all, the interest may not be a good measure of the burden, because the capital may produce more than the interest rate on account of the tax wedge. With a corporate tax of 50 per cent, if the return to capital were 10 per cent, it would reduce to 5 per cent after tax, which also equals the interest rate. That is, when the government displaces $1 billion of capital, there is not only a loss of $50 million in income to the holders, but also a loss of $50 million in tax revenue to the government. So the loss is not just the interest bill, but the interest bill plus the tax bill thereon.

Again, the burden exists because the deficit displaces capital; but if the debt is used to finance government capital, then there will be a return from it that makes up for the private capital displaced. In principle, what matters is not the deficit but the deficit minus the value of income-earning assets, financial or physical, that the government may hold, with the return being calculated not necessarily in terms of cash return but in terms of social return.

Two other points are, I think, relevant to the current discussion. One is that the argument I have developed about the burden of the debt is clearly valid when resources are fully utilized, so that the government deficit does, in fact, displace investment. If there is slack in the economy, then the government deficit need not displace investment (and may actually increase it). Therefore, there need not be any burden, at least in the short run. One has to be careful here, because whether or not the deficit does displace other things is not just a function of the availability of resources, but also a function of the monetary policy being pursued at the same time. If we have slack resources and would like to use them, then there should be a monetary policy that permits investment and government deficit to go on together, preventing the crowding-out.

On the other hand, it may be that we have slack but do not want to use it. In many places, such as the United States, policymakers feel that the slack is needed at present to reduce inflation. In situations where the slack is wanted, the government deficit may again displace investment. But this applies only in situations like the current one where the slack must be maintained because of other services it performs. Let me remark in this connection that when I am asked by people whether we are going through a repetition of the Great Depression, I say that there is a great difference between then and now: then we did not know how to control unemployment; now we do, reasonably well. We have been using the knowledge, particularly in the United States, to create a lot of unemployment as a way to fight inflation. Whether that is a good way or not is a separate issue. At least it has worked, though with a lot of pain.

Finally, there is the question of debt in the family - or outside the family. Suppose that instead of borrowing domestically, we borrow abroad. Does that make any difference to the burden argument? Even those who maintain that there is no burden from an internal debt must acknowledge that an external debt does cause a burden, since we have to pay the interest outside. My argument implies that, if we are using resources fully, it is immaterial, at least to a first approximation, whether the borrowing is inside or outside. If we borrow inside, we displace investment and lose the income from those investments. If we borrow outside, we continue to have those investments, but we have to pay the income to outsiders and, therefore, our society loses the same amount. The net result is the same, except for second-order refinements that depend on taxation and so on.

It remains to consider the 'super-sophisticated' no-burden argument. This is an argument that probably has not gone much beyond sophisticated economists. It is sometimes traced way back to Ricardo, although I do not think this is a correct way of putting it. My opinion is that Ricardo did suggest the possibility but thought it was not practically relevant. The basis for the argument is as follows. Suppose we assume that life is infinite, as economists not infrequently do, and that all taxes are strictly proportional to income. Suppose further that the government intends to spend $100 and has a choice of either collecting a tax for $100 now or floating a loan for $100 and then raising taxes to pay the interest from now on. Whatever choice the government makes, everybody will be in exactly the same position. Paying $100 now and paying $5 forever have exactly the same present value, and the taxpayer really shouldn't care a bit which is chosen. So, tax financing and debt financing are equivalent. The burden is in the use of resources, not in the way their acquisition is financed.

This argument, resting on infinite life, has recently been extended by Barro (1974) and others to the case in which life is finite, through the mechanism of inheritance. Suppose that you, at present, are making decisions for yourself and your heirs as to how you and your heirs will allocate your resources to consumption over time - so much to you, so much to the heirs. Now along comes the government and says, 'We are going to reduce your taxes by $100 by raising a loan whose interest will be paid by future generations.' If you are a rational man you will say, 'Why should I let the government decide that I should be better off - and my heirs worse off - than I originally decided? I've made a certain decision and I am going to stick by it. To do this, I have only to use the tax rebate to buy the $100 worth of bonds that the government offers and pass them on to my heirs, so that when the collector comes around for $5 a year they can simply pay him with the $5 they receive from the bonds. They will be as well off as before, and I will be as well off as before.' Again, in this kind of world, it is immaterial whether the government taxes or uses deficit financing.

The only trouble with this argument is that it has nothing - or almost nothing - to do with the real world. Why is that so? There are many reasons, and let me quickly point out some. To begin with, just consider the simple case in which people are not identical: I happen to have no children and you happen to have twenty. In this case, the choice between taxing and borrowing can make an enormous difference. I, who have no children, would much rather see the tax put on children; you, who have twenty, would much rather have the tax paid now. It is clear that alternative methods of financing are not neutral and that the differential effects on current consumption are not necessarily going to cancel out.

A more serious shortcoming of the argument results from 'asymmetry'. Suppose I decide that the optimum allocation calls for my children to consume less and for me to consume more than our respective life incomes. If I could, I would elect for a negative bequest, or a transfer from my children to me. But I can't; the closest to optimum is to plan no bequests. If an additional tax is put on me to retire debt, I would like to shift it to the future, which I could do only by reducing bequests. But with zero initial bequests, all I can do is stay where I am. So, in general, whenever the actual planned bequest is zero and the optimal is negative - calling for a transfer from children to parents - the choice of financing is relevant. Replacing taxes with deficits will transfer from the future to the current generation. In fact, it is precisely for this reason that the choice of financing may be a way for the current generation to achieve a desired outcome not achievable through private transfers. For example, if we finance a major war by debt, then the generation of the war will come out of the war with debt that it can sell to support a higher consumption. It will, thereby, reduce the net saving of society in the future, since the new generation's saving will go into buying existing bonds instead of adding to the stock of capital. Thus, we can, by our choice of financing, control how the burden is distributed between the present and the future.

In general, the empirical relevance of Barro's paradigm depends on the quantitative role of bequests as an intergenerational bridge. This is a very big issue, and I do not have time to discuss it fully here. It is closely related to the importance of bequests as a determinant of national wealth, which is currently hotly debated. Some people have recently claimed that most wealth is, in fact, the result of bequests. I have done some fresh work in this area, and my results suggest very strongly that, at least in the United States in this century, bequests are a modest portion of wealth between 15 and 20 per cent of the total. This estimate is derived from many different sources, from inquiries made through surveys to analysis of wills. They all point clearly in the direction of a relatively modest amount of transfers, it being understood that the transfers relevant here exclude those between husband and wife. These appear in wills as bequests but, of course, really occur inside the household. If they are taken out, and they are very substantial, the remaining bequests are relatively unimportant.

Consequently, I would not expect bequests to significantly offset public financing decisions, and accordingly I see the national debt having an unfavourable effect on the stock of capital in terms of crowding out tangible capital.

This conclusion is supported by some empirical work I have done in this area. We have estimates for the United States of private national wealth, or the wealth of households, going back to the beginning of the century, mostly due to the work of Goldsmith (1963). Since the beginning of the post-war period, we have official estimates from the Federal Reserve Flow of Funds series. We also have data on the amount of government debt - federal, state, and local - so we can ask the following question: Is there any evidence to support Barro's hypothesis, as against the LCH? How would we tell the two apart?

If Barro is right, whenever the government borrows, people will decide to accumulate more so that they can offset the debt burden on their children. In other words, they want to pass on to their children additional wealth equal to the debt the government has floated, so that the future generations will be no worse off. Hence, one would expect wealth to rise, dollar for dollar, as the debt rises. This is the same as saying that the amount of wealth minus debt - call it private tangible capital - is independent of the amount of debt. That would be evidence that there is no burden, no crowding-out. On the other hand, there is evidence of crowding-out if wealth does not rise with debt and, hence, tangible capital declines with debt.

An earlier study of mine (1966) examined the United States' evidence for the period 1900 to 1958, and found that the private wealth/income ratio is absolutely independent of the government debt/income ratio. In fact, the coefficient of the debt/income ratio, instead of being 1, as implied by Barro, is -.04, and statistically totally insignificant. I have recently rerun this test with alternative formulations and found approximately the same results. I have also extended the tests to the period 1900-80, and again the general result is that there is no evidence of the debt having an effect on wealth. Or, equivalently, private tangible wealth decreases roughly dollar for dollar with the debt.

Barro has suggested to me that the test was unsatisfactory because, if people are truly rational, they will look not at the debt, but at the debt minus the assets the government holds. They know that whenever the government has one more dollar of debt they need to leave one dollar more of bequest, while when the government increases its assets by a dollar they need, on balance, to leave one dollar less. What really matters, then, is the net worth of the government. I have, therefore, run the same regressions using not the debt but the net worth of the government, and the results are exactly the same. There is no evidence that the net worth of the government has any effect. Interestingly enough, if you look separately at the effect of assets and liabilities, the assets have a slightly negative effect, consistent with Barro, but the liabilities also have a slightly negative effect - and both effects are very small and very insignificant. On the whole, then, the data for the U.S. appear to reject Barro's hypothesis and to support the view that government debt crowds out private tangible wealth.

Tests have also been carried out relying on a cross-section of countries and looking for evidence that, where the deficit is large, saving is large. For, if Barro is right, where the government deficit on current account is large, savings should be large. Preliminary results show no positive association between the private saving rate and the current account deficit. Indeed, the association appears slightly negative - where the deficit is large, saving is small and vice versa - but not significant. Again, there is absolutely no evidence in favour of the Barro hypothesis, and a strong presumption in favour of the hypothesis that debt crowds out capital.

The conclusion that deficits have an unfavourable effect on the economy, in particular through crowding-out of investment, raises the question of whether the recent exceptionally large, and widespread, cash deficits, of which we saw evidence at the start, could be a source of our present difficulties - high inflation, high unemployment, low productivity growth.

I am going to suggest that the answer is very clearly negative, and the reason - somewhat paradoxically - is that there really are no significant 'crowding-out' deficits anywhere. This proposition might seem totally inconsistent with the figures discussed earlier. But there is no contradiction, because the figures show the cash deficit, whereas the deficit that creates crowding-out is the rise in the real debt. The change in the real debt differs from the change in nominal debt, or cash deficit, because of the loss of real value of the debt due to inflation. When an adjustment is made for the depreciation of the debt, which is the same as computing the interest bill using the real, rather than the nominal, interest rate, one finds that this has a large impact on the deficit.

Take as an example the United States, where the debt is around $1.2 trillion. If inflation is, say, 10 per cent, it implies a $120 billion correction. In 1982, the U.S. deficit, though exceptionally huge, is, in fact, of a very similar magnitude. Thus, after subtracting a correction for $120 billion, one is left with roughly zero. This somewhat exaggerates the correction, because it should be applied not to the gross, but to the net, debt (i.e., net of financial claims). Still, if one does the correct calculation for past years, one will find that, in fact, the correction exceeds the cash deficit itself. This is shown in Figure 2. The top curve is the unadjusted federal deficit, and the second, dotted line is the consolidated deficit of all governments - federal, state, and local. The consolidation already makes quite a bit of difference, because it happened that, while the federal government was running a deficit, the state and local governments were running surpluses. The lower solid curve is corrected for inflation, and the broken line that follows it is corrected for inflation and for investment so that it represents deficit on current account.

One can see that by the time all the adjustments are made, there are essentially no deficits up to 1982. The modest exception occurs in 1975, but this deficit is largely of a cyclical nature. I pointed out earlier that it is all right to have a deficit when there is a depression and that, in fact, a sound fiscal structure should lead to counter-cyclical deficits, as tax receipts should vary cyclically and expenditure should move counter-cyclically. If Figure 2 were adjusted for the cyclical deficit, as John Bossons and Peter Dungan have done for Canada in a paper (1983) that I understand is being debated these days, it would be clear that there really is no significant deficit anywhere in the United States.

What we have just found for the United States holds roughly for other OECD countries and, in particular, for the nine shown in Figure 4. This exhibits a correction of the cash deficit for the depreciation of the debt due to inflation. The correction is represented by the shaded area subtracted from the column representing the cash deficit. Thus, the lower boundary of the shaded area represents the inflation-corrected deficit (if above the horizontal line) or surplus (if below). One can see, for instance, that for Austria, in the first period, there was very little inflation and hence a slight correction for inflation. In the second period, there was a larger cash deficit; corrected for inflation, however, the deficit becomes zero. Similar results hold for most other countries: correction for the effect of inflation generally wipes out the deficit and even turns it into a surplus. Indeed, it is apparent that, after correction for inflation, there were hardly any deficits on current accounts in the late seventies, except in Japan and, I am afraid, in Canada. Note that Japan, which has a slight deficit, is one of the countries with the lowest inflation rate. One can clearly see, from Figure 4, that there are no grounds for holding that the stagflation was produced by an outburst of uncontrolled deficits.

On the contrary, one can argue just the opposite: that stagflation is the cause of deficits. Why? The main link comes from the fact that inflation means high interest rates, and high interest rates mean a large interest payment. It would be rational and consistent with sound fiscal policies to meet this enhanced interest bill by borrowing rather than by raising tax rates - unless one is bent on a policy of actually reducing the real national debt. The reason, of course, is that the higher interest reflects the inflation premium, which itself is equivalent to a repayment of the (real) debt. Thus, unless one intends to reduce the real debt, funds required to pay the inflation premium should come from borrowing, not from taxes. As a result, a high rate of inflation could be expected to produce deficits of a magnitude related to the inflation correction. Similarly, high unemployment tends to cause high cyclical deficits.

An examination of Figure 4 suggests that, in most countries, policymakers have been willing to accept, in part, the higher cash deficits implied by stagflation under constant tax rates. In part, however, they have tended to contain the higher cash deficits through higher tax rates (partly the result of the so called 'bracket creep' effect of progressive taxation), with the outcome that, on balance, correctly measured deficits have been lower, not higher, in the more recent period. It is these considerations that lead me to reject the popular view that stagflation has been the result of irresponsible fiscal policies and to suggest, instead, that the observed association of deficits and stagflation reflects the causal link from stagflation to deficits, when tax rates and real expenditures on goods and services are held constant.

That seems to be the essential story for the past. There has been no problem coming from deficits, though deficits can pose a serious problem, because there have been no significant deficits. What about the future? Here it may be useful to go back to the United States' chart (Figure 1) for it suggests that Mr. Reagan is trying very hard to make a non-problem into a problem. For a man who came to power telling us that deficit was the worst thing in the world, the huge deficits he is proposing for the coming years are quite a change and quite a puzzle. If they come at a time when inflation has largely abated and unemployment has largely disappeared, they will be truly of the crowding-out variety. There is no warranted correction that can make them shrink. Therefore, they will represent a serious problem.

Of course, the implications of the large deficit for the U.S. are serious in many ways for the rest of the world as well. The displacement of investment will, presumably, mean a continuation of high interest rates, which, given the size of the country, will tend to mean damagingly high interest rates for the rest of the world. However, one should separate the past from the future. In the past, deficits have not represented a major problem. In countries such as Canada, which are not facing a huge armaments build-up, I suspect that the future does not look too bleak. For the United States, the deficits do look quite disturbing, and they have ominous implications for the rest of the world. But one must hope that something will be done before things get serious.

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Discussion

QUESTION: I will start by asking Franco to cast his mind back to his birthplace, namely Italy, and consider the differences between a small, open economy such as Italy - or Canada - and a relatively closed economy such as the U.S. Do those differences affect your view of whether or not the deficit is a problem?

FRANCO MODIGLIANI: You mean whether the deficit creates a different kind of problem?

QUESTION: Whether or not crowding-out is a different issue in an economy such as the U.S. than it is in an economy such as Canada.

FRANCO MODIGLIANI: I think that in the case of Canada, an open economy like the U.S. but much more open, the effects of a large deficit would be somewhat different, and, in particular, would result in less crowding-out of investment. This is because the rise in interest rates would be kept down by an inflow of foreign capital, which, in turn, could finance the government deficit without diverting domestic saving away from financing investment. Thus, to some extent the deficit, instead of crowding out investment, would 'crowd in' foreign capital or net imports. This would be true even if there were slack in the economy, as long as the money supply were given and did not allow a significant expansion in domestic output.

But even in this case the debt would impose a burden on future generations, which would have to pay taxes in order to pay the interest on the foreign debt. The amount of that interest would be commensurate with the return on capital that would be crowded out by debt in the closed economy - though probably somewhat smaller.

QUESTION: It occurs to me that you look at each country somewhat in isolation - that the transfer from current net wealth to future net wealth tends to be parallel through all the countries. I am interested in what happens when the awful happens, when there is a financial breakdown and a particular country can't service its debt and becomes bankrupt. In other words, what happens when you put what you have told us into an international context?

FRANCO MODIGLIANI: First, I have suggested that foreign debts can create a lot of problems, in spite of the argument that even if you run a deficit you don't crowd out investment because you can attract capital. This argument has been made in the United States - in fact, it appeared in last year's Economic Report of the President. Well, I say that even if you attract capital the deficit produces a burden, because you have to service the debt. On top of that, we are all aware that it is less problematic to service domestic debt than it is to service foreign debt, because domestic debt can always be financed by inflation. I didn't really dwell on this, but there is a way of placing the burden on the current generation even with deficit financing, namely by covering the deficit by money creation. In that case, the burden falls on the current generation because money creation amounts to a tax. This tax is just like any other tax, and any expenditure that is financed by tax is a burden on the current generation.

In the case of domestic financing, you always have that possibility. It is on this ground that Mr. Wriston of Citibank suggested at one point that there is never a risk in lending to a sovereign government. But really he went too far. With loans denominated in a foreign currency, there is a risk - since the sovereign government can't print that currency. There may be no risk in lending to a state in cruzeiros if that is its currency and it can print cruzeiros. But when it comes to servicing foreign debt, the borrower has the problem of finding the resources in the foreign currency. There would certainly be extra problems if the borrowing were on a large scale.

I think the problems facing some of the countries that are in debt are not primarily problems of their having borrowed excessively in absolute terms. Their problems are really related to the fact that their debt is in foreign currencies. Problems have arisen from the combination of higher interest rates and reduced world activity, which has reduced exports.

On the whole, I would say that there are special problems involved in foreign borrowing, and that we see some of these problems in the current situation. That situation is not, however, quite as bad as it may seem. I expect that some of the major problems will resolve themselves as inflation abates, interest rates are reduced, and there is a pick-up in international trade.

QUESTION: There are a lot of people here who are practical investors, i.e., they put up their money. If a government continues to run deficits for a long period of time, year after year, that deficit goes up, it has to be serviced. The people who invest their money have a gut feeling that they are going to have to pay more and more taxes to service that debt. It gets to a point where they say, 'I am not going to invest any more money to make profits that are going to be continually taxed by the state to pay for the deficit.' Why should people continue to invest their capital when they see a percentage of the money that is being taxed going up and pushing their taxes up to pay the debt and their profits subsequently being more highly taxed?

FRANCO MODIGLIANI: You said people should be concerned if the amount of interest governments have to pay is rising faster than their tax bases. I quite agree with you. If there isn't a good reason for this to happen, such as a very temporary bulge in the deficit, due to a depression, or an effort to build capital that will produce the income that will pay the interest, then I would certainly say there were grounds for concern. But I have been trying to distinguish between the fact that the nominal debt and the nominal interest bill rise, and the fact that they rise faster than income. Now, in the current situation one finds that the deficit, corrected so as to measure the rise in the real debt, is not rising relative to real income - in fact, it may be declining.

Please refer again to Figure 2. It shows that for the United States there was no problem, even though there were cash deficits throughout the seventies and the debt was rising, as is shown in Figure 1. The lower line in Figure 1 measures the U.S. federal government's net worth, i.e., the difference between the government deficit - the upper line - and government assets, consisting of claims on the private sector and of physical assets. One can see that, though the debt and the interest on it have been rising, nonetheless, in real terms, there has been an increase in the net worth of the government. The point is that the rise in debt and interest largely reflects inflation; inflation has caused income to rise even faster than debt, so that the ratio of debt to GNP has fallen steadily since the war, when it reached almost 2.0, to where it is now, approximately 0.3 (including the state, local, and federal governments). In short, a rise in real debt, especially if faster than real income, is a valid reason for concern. But one must be careful to distinguish what is really going on from what seems to be going on, because of illusion due to inflation.

I do not have the figures for Canada on hand, but I understand from what John Bossons has been telling me that the ratio of debt to income has declined in Canada also until very, very recently and has just now been rising under very depressed conditions. If the depressed conditions go away and you find that the ratio continues to rise, then, I think, you will have a very good case for saying: 'Hey, what are we doing here?'

COMMENT: I am getting away from the topic, but it strikes me that what you are proposing assumes great economic literacy on the part of the people of the United States and Canada. I submit that there isn't that economic literacy, that people in fact don't differentiate between real and inflationary debt, and that those who are making the investments, on either an individual or a corporate basis, look only at the raw figures and say, 'Reagan has gotten us into a trillion dollars of debt, Trudeau has gotten us into a $28 billion deficit, and I ain't going to invest.'

FRANCO MODIGLIANI: I do not join some of my colleagues, such as Barro and other followers of the so-called rational expectations hypothesis, in believing that people are very rational. I don't believe they are, and I don't think we should expect them to be when they vote. But what I am asking the public to understand is something simple, something I hope anyone can understand. My point is that one should never look at just the debt: instead, one should look at the ratio of debt to income. To compute the debt/income ratio, one doesn't have to deflate by any price index. The debt/income ratio, in real or nominal terms, is the same. Thus, one only needs to know long division, or to own a small calculator! What I am saying is that the debt can be growing quite fast, say at 10 per cent per year, and the debt/income ratio not at all, because income is growing at 12 per cent.

It seems to me that this is a minimum that anybody can understand. Don't look at the interest, because the interest is inflated, and the reason why is a hard concept to understand. But just stress that, despite everything, the debt/income ratio is not rising.

QUESTION: I am interested in the discount factors that you use in inflation-adjusting the deficit. You assume that there is some kind of constant relationship between the rise in incomes and the capacity to pay the deficit. In Canada we have an indexed tax system, and I wonder if that would alter your view of the assessment of the valuation of the deficit, given that the capacity of the government to repay the debt is affected by taxes.

FRANCO MODIGLIANI: Let me answer your question in two steps. One is easy and the other more complicated. The easy one is this: indexation in no way changes what I have said, because indexation means that, with respect to the effect of inflation, taxes remain proportionate to income. Indexation is meant to avoid the bracket creep which causes taxes to rise faster than income. With indexation, you should find that government income rises in proportion with income, so there is no special problem there.

By the way, it should be realized that, where there is no indexation of the brackets, the change in brackets generally tends to be done 'by hand'. In the United States we have had repeated reduction in tax rates to offset the inflation. Now indexation is much better, because when you have to do it by hand you always get into a fight about who is going to get the benefit. There really ought to be no question; inflation should not change the position of taxpayers. But in reality, arguments develop: for instance, that the rich can stand inflation and the poor can't, therefore we have to change taxes, rather than the tax rate, equally.

There is another aspect I must touch upon. When I say that one should correct the government deficit for inflation, one may object that the government still has to finance the full interest. The point is that if people behave rationally and reasonably, they will be increasing their saving roughly to the extent to which the government needs to borrow more. Why? Because when they get a 10 per cent higher interest rate because of 10 per cent inflation, they should realize that the extra 10 per cent is not income but a compensation for loss of principal, and that they have to save it in order to maintain their principal. There should, thus, be a matching relation between the increased cash saving measured in the conventional way and the inflation-correction of the debt. In other words, there is no crowding-out from the borrowing to pay the inflation premium because there is additional saving corresponding to the additional interest paid by the government.

There is, however, a question of whether people behave this way. Here the evidence is complicated - it's not an easy thing to establish. In the case of Canada, the evidence seems to suggest that they do - that people have increased their savings by at least this amount. I have looked at many other countries and the evidence is not quite as clear, but by and large there seems to be evidence that with inflation there has been a rise in savings sufficient to compensate for additional government interest. In the U.S., the evidence is mixed - perhaps it hasn't happened, perhaps it does not occur fully in the short run. Yet I think that, given enough time, people will learn to adjust. But in the short run, one could have some crowding-out effect, despite the fact that this additional interest only goes to compensate for loss of principal.

QUESTION: You seem to indicate, Professor Modigliani, some divergence of opinion about the past and present as far as the United States' situation is concerned. For example, you suggest that the ratio of debt to GNP has been declining in the United States, but if I understood you correctly you also suggested that there is a structural deficit in the United States. That is, if inflation rates dropped to zero and if the U.S. went back to some kind of full employment of resources, there still would be a deficit. Financial markets in the United States are still telling us that there are very high real interest rates, especially in the long run if you subtract from the nominal rate an inflation rate of something like 2 or 3 per cent. Does your analysis suggest whether that high real rate is warranted or not?

FRANCO MODIGLIANI: First of all, let me repeat for the sake of clarity that in the U.S. there are some substantial deficits in sight, whereas there were none in the recent past. The prospective deficits are perfectly understandable, given that we have a huge build-up in our defense expenditure and a very large cut in taxes. It is that huge build-up, the fastest ever as I understand it, that causes the real problem, combined with the fact that taxes have been and are still being cut. It is a combination of lower receipts and higher government expenditure that will cause the future 'structural' deficit where there was none before.

Next, I certainly do believe that concern about the future deficit is a major cause of what appear to be unusually high long-term rates compared with inflation, though I think perhaps this concern is not the only reason. I think there is probably, on balance, some rise in the spread between shorts and longs due to the fact that the behaviour of the long-term rates has been so volatile that, in fact, long-term bond issues have become nearly as risky as stocks - the change in volatility of long-term issues has really been enormous. The latest game in town among the managers of portfolios is to play the bond market.

In addition, warranted levels of real rates have been raised significantly, in my view, by the very important investment incentives provided in recent legislation. But, on the whole, I think the spreads are also quite high. Are they excessive? Yes, in the sense that, come two or three years from now interest rates will not, I would bet, be as high as those long-term rates imply. I do feel that they are exaggerated. For several years I have been advising people to stay short, but now I would not object to lengthening the maturity.

In that sense, I do believe interest rates are somewhat on the high side. I think they will be stuck there for a while, and until there is some solution to this deficit they may create a problem.

The Ontario budget deficit: a cause for concern?

D. A. L. Auld*

The moral stigma attached to budget deficits is a strange phenomenon, since it is applied to what is nothing more than an accounting term devoid of any normative overtones. It is derived in part from an analogy with the family, where 'living within one's means' is viewed as a standard of acceptable behaviour. However, few people would consider it immoral to assume a mortgage for the purpose of 'owning' a home. On the contrary, home ownership is often seen as an important part of a proper family environment. It is true that corporations showing losses must restore profit to the income and expense statement lest they eventually go bankrupt, but few would refuse a corporation the right to borrow money for certain purposes if it had the potential to repay the debt.

The present attitude toward budget deficits may reflect the frustration by a society that has watched deficits and rising unemployment occur simultaneously. As long as deficits appeared to stimulate growth and maintain ever-increasing standards of living, philosophical or moral opposition to deficits was never taken seriously. That has obviously changed, not only in Ontario but in Canada as a whole and throughout the developed industrial nations. In a relative sense, concern over Ontario's deficits of 1 to 2 per cent of gross provincial product seems unfounded, given recent deficits in France (4 per cent), Italy (15 per cent), Japan (5 per cent), the U.S. (5 per cent), and the U.K. (7.5 per cent).[1]

The concern over public sector budget deficits focuses on four major issues: the impact of deficits on the intertemporal distribution of the costs of public goods; the potential effect that deficits, financed by the issue of high-powered money, have on inflation; the impact of foreign borrowing on exchange rates; and the impact that deficit financing has, at least potentially, on interest rates and the ability of governments to repay debt on time. With the exception of the relationship between deficits and the money supply, all of these concerns apply to the provincial as well as the federal budget deficit. Financial analysts have concluded that 'The fear of huge government deficits ... [has] plunged the capital markets into a state of disarray...' (The Globe and Mail, 25 January 1983, B3.) There is also considerable concern that Canada's public sector borrowing overseas ($8.7 billion in 1982) will, through its future drain on the current account, pull the Canadian dollar down (The Globe and Mail, 24 January 1983). The Ontario situation is no exception. The announcement in May 1982 that Ontario was planning a deficit of $2.23 billion elicited the comment from one broker that such a deficit was bound '...to be an obstacle to falling interest rates.' (The Globe and Mail, 17 May 1983, B1.)

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While we recognize that a provincial budget deficit may have undesirable consequences, it is our contention that current concerns spring from a less than thorough analysis of the province's deficit. An adequate analysis would have to take into full account each of the following factors:

- the impact of inflation on the provincial budget,
- the cyclical nature of the budget result, and
- the nature of public capital expenditures.

All of these issues can be summarized by a single algebraic expression of the provincial budget identity, shown in Table 1. First, the impact of inflation, particularly accelerating inflation, affects the left-hand side of this identity by pushing up interest payments, contributing to the need to find additional revenue. As we shall see later, the effect is dramatic. Second, a recession characterized by reduced income growth causes transfers, $G(Y)$, to rise and tax revenues, $T(Y)$, to slow or fall. Third, the inclusion of G^k on the left-hand side of the identity suggests that, net of depreciation, capital spending at least ought to be balanced on the right-hand side by the issue of debt.

The purpose of this paper is to address each of these issues in light of the past and current deficits of the Ontario government. The paper concludes with a short note on the manageability of the provincial public

TABLE 1
The budget identity

$$[G_t^o + G(Y_t) + G_t^k + R_t] = [T(Y_t) + D_t]$$

G^o = public expenditure on goods and services.

$G(Y)$ = transfer payments, sensitive to level of income.

G^k = gross fixed public capital formation.

$T(Y)$ = tax revenue.

D = new bonds, borrowing, or reductions in reserves.

R = interest payments on past bond issues and equal to Z_{t-1} $(r+\pi)$ where π is the actual or expected rate of inflation, r is the real rate of interest, and Z_{t-1} represents the stock of public debt.

debt. However, before we proceed to an analysis of the interaction between inflation and the budget balance, a brief summary of the historical development of the budget balance seems in order.

A BRIEF HISTORICAL REVIEW

From an historical perspective, the concern over budget deficits that has arisen in the past six or seven years is somewhat of a puzzle. In 1960, for example, the Ontario deficit was 10.4 per cent of public expenditures, and in 1962 it rose to 12.1 per cent. Going back even further, the deficit was 9.6 per cent of expenditures in 1950 and 7.2 per cent in 1955. By comparison, the deficit was 13.0 per cent of expenditures in 1977-8 and 4.6 in 1980-1, and is expected to be 9.8 per cent in 1982-3.[2] Over the past twenty-four years, there have been deficits in all years but two, ranging from 1.0 to 15.9 per cent of provincial expenditure (see Table 2). The average deficit over this period has been 7.2 per cent of provincial government expenditure, and the figure has risen only slightly since 1969-70 (see Figure 1).

TABLE 2
Ontario budget result as a percentage of total provincial expenditure

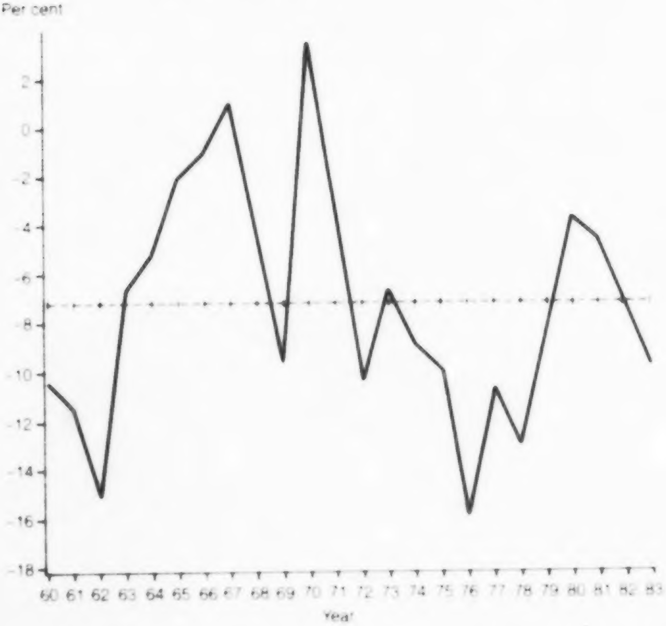
1959-60	-10.4	1971-2	-10.4
1961	-11.5	1973	- 6.7
1962	-15.1	1974	- 8.9
1963	- 6.7	1975	- 9.9
1964	- 5.1	1976	-15.9
1965	- 2.1	1977	-10.6
1966	- 1.0	1978	-13.0
1967	+ 1.1	1979	- 8.2
1968	- 4.7	1980	- 3.7
1969	- 9.5	1981	- 4.6
1970	+ 3.5	1982	- 7.6
1971	- 2.6	1983	- 9.8

SOURCE: See Figure 1.

In absolute terms, however, deficits have grown considerably in recent years, reflecting the growth of the public sector. The emergence in 1975-6 of a deficit of almost $2 billion was the 'break' with historical standards that precipitated the call for lower deficits. The deficit remained above $1 billion for the next three years and then fell below that figure for two years. With the doubling of the deficit in 1981-2 over the 1980-1 figure and the estimated $2.2 billion deficit in 1982-3, there have been renewed demands by the private sector and the opposition that the budget be steered back to a balance between revenues and expenditures.

Figures 2 and 3 summarize the changes in the annual budget result since 1970-1. These changes suggest that the Ontario budget is highly responsive to changes in the level of activity in the economy, changes in fiscal instruments, or both. There seems to be no tendency for budget results to change more widely over time. The swings in budget results in the 1975-82 cycle of economic activity are no larger in relative terms than those during the 1961-7 cycle. As a percentage of Gross Provincial Product (Figure 4), the deficit rose significantly between 1969 and 1976, but the trend to 1980-1 was downward. It has risen again over the last three years.

Figure 1
Ontario budget result as a percentage of provincial government expenditure



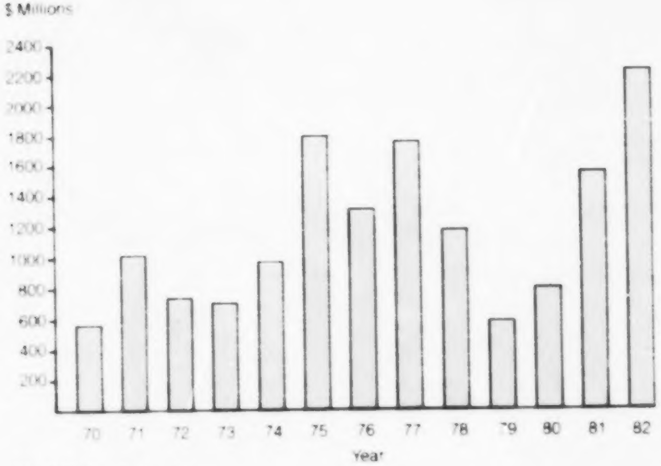
SOURCE Ontario budgets 1965, 1969, 1977, and 1982

THE IMPACT OF INFLATION ON PUBLIC DEBT CHARGES AND THE DEFICIT

We now turn to the first of the three issues outlined earlier and attempt to answer the question: how has inflation, and in particular accelerating inflation, affected the budget balance of the Province of Ontario?

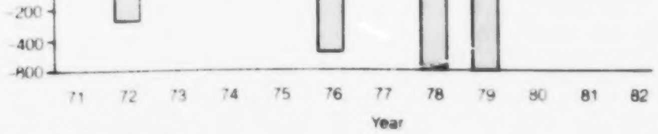
Inflation grossly distorts the real effects of debt financing and the cost of carrying that debt in both businesses and government. Consider a government that wishes to finance $100 million worth of public capital investment in period 1 and again in period 2 by the issue of long-term bonds. We assume a real rate of interest of 2 per cent and, in Case I, no inflation. In Case II, we assume a 10 per cent rate of inflation. In Case

Figure 2
Budget deficit ($ millions)



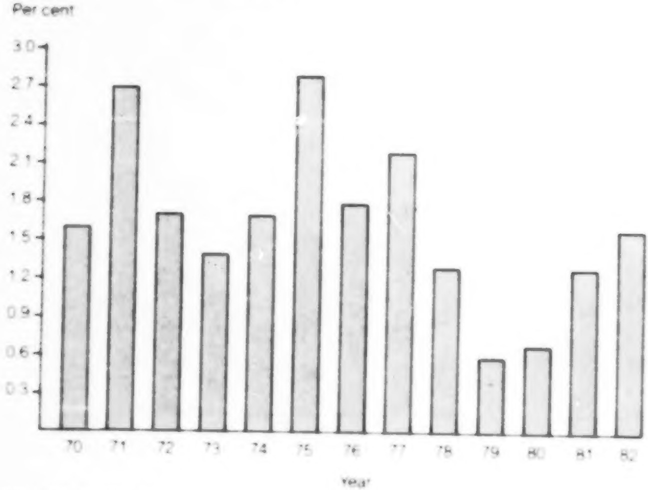
SOURCE See Figure 1

Figure 3
Change in deficit ($ millions)



SOURCE See Figure 1

Figure 4
Ontario deficit as a percentage of GPP



SOURCE: See Figure 1

I, the public debt has doubled by the end of the second period, as have total debt charges (see Table 3). In Case II, it is assumed that to maintain the real value of the investments in a world of 10 per cent inflation, it will be necessary to issue $110 million worth of bonds in period 2. This results in an interest cost in period 2 of $13.2 million on the $110 million and cumulative debt charges of $15.2 million associated with a total debt of $210 million. Thus, while the total debt has increased a little more than two-fold, interest charges have accelerated more than sevenfold! These nominal interest charges, which are carried as current expenditures on the expenditure side of the budget, can very quickly contribute to a substantial increase in government expenditure. If the rate of inflation continues to accelerate, then interest payments will rise at a much faster rate than the increase in public debt.

In the context of the previous example, suppose that the inflation rate remained at 10 per cent in the third period. To maintain the constant dollar value of public investment of $100 million per year, $115.5 million would need to be raised. The nominal interest on the total debt of $331

TABLE 3
The effect of inflation on debt costs ($ millions)

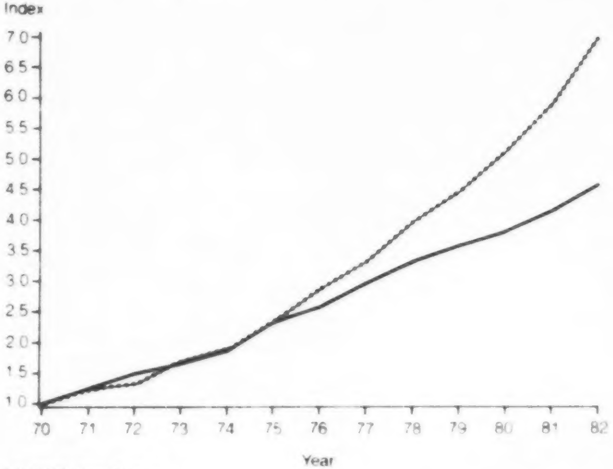
	Case I (no inflation)		Case II (10% inflation)	
	Period 1	Period 2	Period 1	Period 2
Value of bonds issued	100	100	100	110
Real interest	2	2	2	2.2
Inflation compensation	0	0	-	11
Nominal interest	2	2	2	13.2
Cumulative debt charges	2	4	2	15.2
Total debt	100	200	100	210

million would be $27.72 million. Thus, while total nominal debt has increased 3.31 times since the first period, debt charges have increased 14.86 times. Even compared to period 2, the debt charges in period 3 are increasing faster than the debt itself. If the inflation rate is unchanged over all periods, then the rate of increase in debt will parallel the rate of increase in debt charges.

Figure 5 provides a summary illustration of how increasing inflation affects the relationship between debt charges and total public debt. The figure illustrates the annual growth of interest paid and total provincial funded debt as an index using 1970-1 as the base year (1970-1 = 1.00). Until 1975-6, the two series moved closely, then diverged as interest costs jumped from a range of 8 to almost 10 per cent between 1972-3 and 1975-6 to 15 per cent by 1980. By 1982-3, debt charges were 6.98 times their 1970-1 level, while total public debt was 3.58 times its 1970-1 level. If inflation had remained constant, at its 1968-71 average, public debt charges would have been approximately $1 billion lower in 1982-3[3] (Table 4).

While the impact of inflation on total interest charges may not be as acute if the rate of inflation is constant, it nevertheless distorts the current budget of the government. The portion of the interest paid on the provincial debt that represents the inflation premium required to induce people to hold bonds is in a fundamental sense a capital transaction

Figure 5
Index of public debt and debt charges 1970-71 to 1982-83



SOURCE: See Table 4

that retires part of the debt before the actual redemption date. In other words, after a year of 10 per cent inflation, the real debt of the government has declined by 10 per cent. If governments had well-developed capital budgets, the capital transfer associated with the inflation premium would be included in the capital, not the current, budget.[4]

Although there is general agreement that one should consider the impact of inflation on the government's real debt position, there is no agreement as to just how the adjustment should be carried out. Conceptually, it would make sense to use what had been the expected rate of inflation when each issue of debt was placed on the market. Adjustments would be slow, particularly if the term to maturity was long, and it would require agreement on how to measure expected inflation. A more 'crude' method is to base the inflation adjustment on the extent to which real debt is affected each year by the current rate of inflation. This method may 'overstate' the adjustment in the short run, when inflation rates are high; nevertheless, it is satisfactory for our purposes here. Thus, the actual nominal deficit, D, is adjusted to obtain an inflation-adjusted deficit D^* by

TABLE 4
Ontario deficit and funded public debt ($ million)

Year	Public debt[a]	Index of growth of debt	Interest paid	Index of interest paid	Actual deficit
1970-1	4,237	1.00	311	1.00	569
1971-2	5,270	1.24	380	1.22	1,021
1972-3	6,300	1.49	408	1.31	744
1973-4	7,008	1.65	525	1.69	708
1974-5	7,844	1.85	589	1.89	977
1975-6	9,818	2.31	725	2.33	1,799
1976-7	10,895	2.57	890	2.86	1,319
1977-8	12,364	2.96	1,033	3.32	1,762
1978-9	14,039	3.31	1,233	3.96	1,180
1979-80	15,196	3.58	1,388	4.46	584
1980-1	16,214	3.82	1,595	5.12	803
1981-2	17,592	4.15	1,838	5.90	1,560
1982-3	19,409	4.58	2,172	6.98	2,232

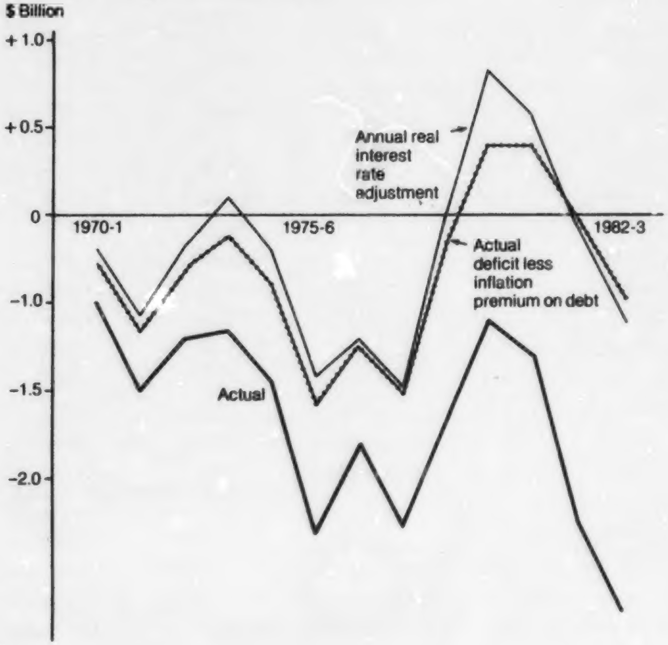
a Excluding Ontario Hydro
SOURCES: Miller (1979, Table C13; 1982a, Table C10).

$$D^*_t = D_t - [(Z_{t-1})\,\pi_t],$$

where Z_{t-1} is the stock of outstanding debt in year t-1 and π_t is the rate of inflation measured by the implicit GNE deflator.[5]

The impact of making such adjustments is shown in Figure 6. The actual and inflation-adjusted budget balances parallel each other until 1975-76, when, with increasing rates of inflation and higher nominal interest, the series diverge. By 1982-3, the inflation premium associated with a funded debt of $19.4 billion is in the neighbourhood of $1.4 to $1.8 billion. A very large portion of the 1982-3 deficit is therefore necessary to finance this capital transaction, due to the impact of inflation on the real value of the debt. The cash requirement associated with the deficit is, of course, very real, but it is not due to 'uncontrolled' or 'wasteful' public expenditure.

Figure 6
Impact of inflation on budget deficit



THE CYCLICAL SENSITIVITY OF THE ONTARIO BUDGET

Fluctuations in nominal interest rates have not been the only cyclical phenomenon affecting the budget result. The past twelve years have also seen cyclical fluctuation in output and employment and fluctuation in either factor can cause the budget result to swing sharply toward or away from a surplus. The present section attempts to estimate the significance of these forces.

To some observers, the sudden development of a budget deficit or an increase in the budget deficit is an indication of uncontrolled spending or the introduction of new programs without the appropriate level of tax financing. While the scenario may be true, it is necessary to separate rhetoric from fact before such a conclusion can be advanced. One of the steps that must be taken is to distinguish between a passive deficit, induced by a change in the level of economic activity, and a deliberate deficit, brought about through tax reductions and/or increases in public expenditure. Furthermore, a deliberate increase in the deficit (or reduction in surplus) may be the result of conscious efforts to stimulate economic activity. The use of deficits for this purpose has been the explicit policy of the Ontario government for more than a decade.

> For the past three years, this Province has run large cash deficits in order to create new jobs and incomes. Ontario's fiscal policy has substantially reinforced federal action in the national economy. (White 1973, 5.)

> ...the Budget I place before you...provides for an expansionary deficit to stimulate the economy... (Miller 1982, 21.)

This section of the paper addresses two questions. First, to what extent is the Ontario budget result a response to changes in the level of economic activity? Second, have deliberate deficits been counter-cyclical?

In order to measure just how sensitive the budget result is to changes in the level of economic activity, it is necessary to 'purge' the budget result of the effect of discretionary changes in fiscal instruments. Such an exercise also allows us to estimate the relative demand-creating or demand-destroying impact of deliberate fiscal policy. To carry out these estimates for the period 1969-78, we have used the technique of the full-employment budget surplus (FEBS).[6] There are no recent estimates of full-employment GPP, so for subsequent years we have used the alternative technique described in the appendix to this paper.

The FEBS in a given year is the budget result that would occur if the economy were operating at its potential and the actual fiscal parameters (tax rates, benefit rates, and expenditure on goods and services) were fixed. Suppose that the FEBS in one period was $+200 million. If in the next period the FEBS was again $+200 million, we can conclude that no discretionary fiscal policy was undertaken in this period or that action on the tax side was offset by action on the expenditure side.[7] Had the FEBS declined to $+100 million, this decline would be a clear indication that stimulating policies were applied. The difference in the actual budget result between one period and the next would indicate not only discretionary policy effects (if there were any), but also the effect of changes in

TABLE 5
Explanation of deviation of full-employment budget surplus

Case I

Time period	GPP^A	GPP^F	R^A	FEBS
1	100	110	+50	+100
2	90	110	-75	+100

Case II

Time period	GPP^A	GPP^F	R^A	FEBS
1	100	110	+50	+100
2	90	110	-100	+ 70

actual GPP on the budget result.

The example given in Table 5 may help to explain this approach. Consider Case I. When actual gross provincial product (GPP^A) declines, the actual budget result (R^A) moves from a surplus (+50) to a deficit (-75) as tax revenues fall and transfer payments rise. None of this is due to any discretionary action, since the full employment budget surplus (FEBS) remains unchanged at 100. If, in the face of mounting unemployment, the provincial government reduced taxes, forgoing some of its revenue, the scenario might be as shown in Case II. In this example, there is a greater decline in the actual budget result and a decline in the FEBS, a clear indication of discretionary policy, the effect of which is included with the induced budget reponse in the change in the actual budget result. Attempts to maintain the $50 million surplus by higher taxes or lower spending in the face of a recession would only deepen the recession and possibly contribute to a higher deficit in the short run.

Having briefly reviewed the concept of the FEBS, we turn to its application to Ontario in the 1969-78 period. Table 6 shows actual and full-employment budget results for 1969-78. The actual deficit, D, in any year when there was a change in discretionary policy would have been different in the absence of any policy change. For example, an actual deficit of $500 million would have been larger if a tax reduction had not been implemented in that same year. Thus, the existence of discretionary

TABLE 6
Actual budget results and FEBS in Ontario (National Accounts basis) and output gap, 1970-8

Year	FEBS[a]		Change		Actual budget result		Change	Output gap	Change
				$ millions					% change
1969	+272				+216			+2.5	
1970	+117		-155		+ 52		-164	+1.2	-1.3
1971	-229	-342	-346		-380	-362	-432	-0.5	-1.7
1972	-311	-408	- 82	- 66		-386	- 24	+0.9	+0.4
1973		-411		- 3		-282	+104	+2.9	+2.0
1974		-359		+ 52		-219	+163	+1.8	-1.1
1975		-1,[illegible]01		-942		-1,464	-1,145	-3.5	-5.3
1976		-1,241		+ 87		-1,392	+ 72	-1.9	+1.6
1977		-886		+328		-1,279	+113	-3.8	-1.9
1978		-1,084		-198		-1,602	-323	-4.1	-0.3

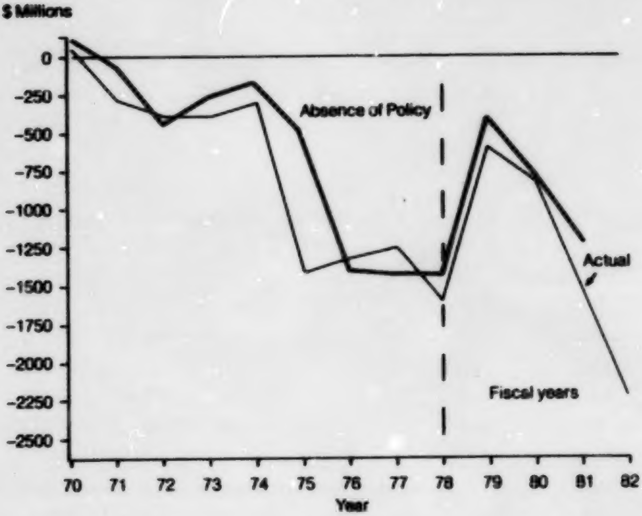
a The 1969-72 and 1971-8 FEBS estimates were arrived at in different ways, causing a split in the series.
SOURCES: Jones, Bardecki, and Hull (1977); White (1973); Miller (1979 and 1982a); Ontario (1977).

policy, if it is counter-cyclical, dampens the rise in the deficit or fall in the surplus. To obtain a measure of the budget result's automatic response to the cycle, we must account for the 'feedback' effects of discretionary policy as indicated by the change in the FEBS. The change in the FEBS is the net, unweighted injection of aggregate demand into the provincial economy.[8] If this is multiplied by the disposable income multiplier, we have a rough measure of the effect of the change in discretionary policy on GPP. If this, in turn, is multiplied by the marginal response of provincial revenue to a change in GPP, we have an estimate of the feedback effect on the budget deficit or surplus. Therefore, the hypothetical deficit in the absence of policy (D^H) is

$$D^H = -(\Delta FEBS)\ (\theta)\ [\frac{\Delta T}{\Delta GPP}] + D$$

where θ is the multiplier, T represents tax revenue, and D is the actual deficit.

Figure 7
Actual deficit and deficit in the absence of discretionary policy



Actual and hypothetical deficits since 1970 are shown in Figure 7 (the 'split' in the series at 1978 is due to the lack of consistent data for the entire period on a calendar year basis). The pattern of hypothetical and actual deficits show clearly that the Ontario budget is very responsive to changes in economic conditions, such as the recessions of 1975 and 1981-3. In short, deficits are to a large degree created by the general economic environment. The area between the lines is what the budget result would likely have been if full employment had been maintained in the 1975-82 period.

The second question we set out to answer was the following. If changes in the deficit were deliberately engineered for counter-cyclical reasons, have these changes been at least qualitatively successful? To answer this question, we compared the change in the FEBS with the change in the official output gap for the period 1970-8. (It was necessary to make an estimate of the output gap for the fiscal years 1978-9 to 1981-2. These estimates are explained in detail in the appendix.) Efficient counter-cyclical fiscal policy suggests that as the economy moves away from full employment, discretionary policies would be expansionary, as indicated by a negative change in the FEBS or a negative change in policy-induced budget result. The reverse would be expected as the gap narrowed. Observations based on these data should give us a trend if fiscal discretionary action has been stabilizing.

Figure 8 plots actual observations of the change in FEBS or policy-induced deficit and change in the GNP gap for the 1969-70 to 1981-2 period. There appears to be one major instance, in 1977, when discretionary policy was not counter-cyclical. The increase in the FEBS in 1977, when the economy moved farther away from potential GNP, was, we suspect, largely due to public pressure on the government to reduce its deficit, which had been expanded in 1974-6 in response to the widening gap between actual and full-employment GPP.

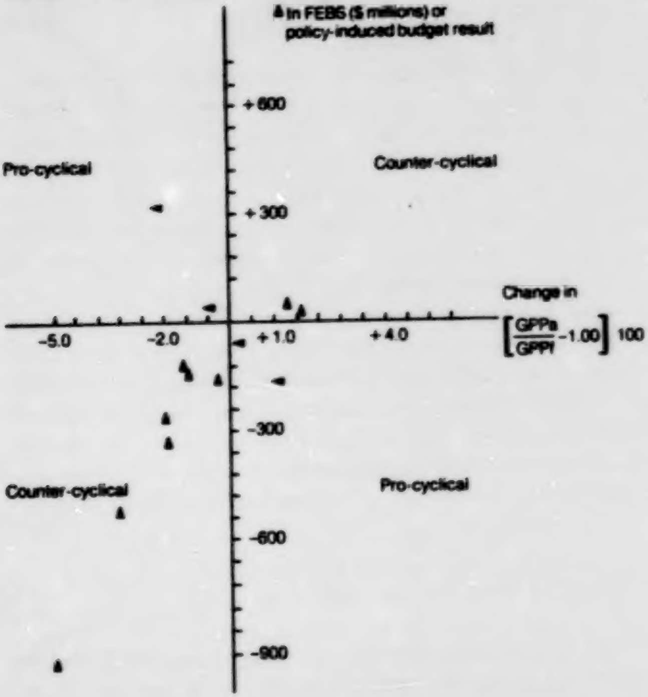
In three other years, the direction of policy appears to have been pro-cyclical. This tendency was pronounced only in 1979-80 (see Table 7), when the deficit was deliberately increased even though unemployment was declining. However, although the output gap was closing, it was still high by historical standards, and it may have been felt that in this context, additional deficit-producing policies were justified. On balance, discretionary policy over this period appears to have been counter-cyclical.

PUBLIC CAPITAL SPENDING AND THE DEFICIT

While inflation and cyclical adjustments to government budgets have been debated and calculated for several years, it is only in the last year or two that there has been a renewed interest in the role of capital expenditures within the framework of the conventional government budget. It is this topic that we turn to now.

If we accept the notion that economic downswings, particularly if accompanied by high interest rates, lead to temporary deficits or increased deficits that should not be offset by tax increases, should a balanced budget be the norm when the economy is close to potential? For several years now the Ontario government has championed both the principle of a balanced budget and borrowing. In his 1978 budget speech the treasurer said, 'We are targeting for a balanced budget to make room in the economy for the private sector to grow and to flourish.' (McKeough 1978a, 10.) Later, in one of the Budget Papers, the statement is made that:

Figure 8
Measuring the impact of discretionary policy



> Sound public finance suggests that government should finance its operating expenditures from current taxation and its capital expenditures from debt issues...long-term financing of capital expenditures ensures that the future work force shares in the costs ...(McKeough 1978b, 3.)

This latter view was reiterated in the 1982 budget speech, in which the treasurer suggested that 'debt financing is a...preferable means of paying for capital investments...' (Miller 1982.) Both the 1978 and 1982 Budget Papers went into some detail to describe the composition of expenditures on fixed assets, pointing out (in 1978) that investment expenditure since 1972-3 had exceeded borrowing. In the 1982 Budget Paper, it was stated that since 1972 '...the overall level of borrowing has been prudent and has virtually all been dedicated to Ontario's capital investment.' (Miller 1982, 8.)

TABLE 7
Unemployment, the output gap, and the impact of discretionary changes on the budget, 1978-9 to 1981-2

Year	Unemployment rate (Ontario)[a]	Unemployment gap[b]	Output gap[c]	Change	Change in deficit due to discretionary policy ($ millions)[d]
1978-9	7.0	1.7	5.9		
1979-80	6.6	1.3	4.5	-1.4	+195
1980-1	6.8	1.5	4.9	+ .5	- 46
1981-2	7.9	2.6	7.9	+3.1	+547

a Statistics Canada The Labour Force.
b Using 5.3 as the full employment norm. See Ontario (1977).
c Estimate on the basis of the relationship between the unemployment gap and output gap, 1971 to 1977 as per note b.
d See appendix

There is no question that a strong case can be made for public fixed capital formation and that at least some portion of this ought to be financed by long-term debt (see Say, 1853, 481). It follows, then, that as long as these capital expenditures are included in the annual budget, expenditure budget planning should be geared toward a deficit as the norm and the concept of a balanced budget, at full employment, should be abandoned. Herein lies the dilemma of fiscal conservatism: advocacy of balanced public budgets and, at the same time, acceptance of the principle of debt-financing expenditure on capital assets.

To a large extent, the problem stems from not separating explicitly the two types of expenditures (capital and current) and establishing a capital budget for the province. While the concept of a capital budget may seem straightforward, there are certain fundamental issues that must be decided:

- What constitutes public investment, expenditures on human capital, such as expenditures for education, or financial investments?
- Should gross or net investment be the basis for long-term debt financing?
- How would the inflation premium on debt charges be incorporated in such a budget?

TABLE 8
Public sector current and capital budget accounts

	Current budget		
	Expenditures		Revenues
1.	Goods and services (exhaustible).	1.	Taxation revenue.
2.	Transfers to persons and and businesses (excluding capital assistance).	2.	Fees, charges, etc.
3.	Interest on public debt.	3.	Transfers from private sector.
4.	Depreciation on existing assets.		
	Capital budget		
	Expenditures		Revenues
1.	Investment in capital assets.	1.	Proceeds of debt issues for net investment expenditure.
2.	Interest payments	2.	Transfers from current budget (depreciation and interest).

Table 8 outlines the structure of a capital budget and illustrates how this budget might be related to the current or 'exhaustible' expenditure budget, assuming that only net investment is debt financed. A strict interpretation and application of this framework (requiring a balanced current budget) would apply only in an environment in which the economy was operating close to its potential. Deficits caused by the response of automatic stabilizers and as a consequence of discretionary policies should not be 'balanced off' against public capital expenditures. In this sense, the Ontario government's claim that its borrowings roughly approximate its capital spending and therefore constitute sound finance is not entirely correct. In a full-employment environment, its borrowings would have been considerably less than total investment, implying that a considerable portion of capital expenditure may have been financed from current tax revenue.[9]

This itself may be closer to 'sound financing' if we accept the notion that replacement investment ought to be financed from current revenue and only net additions to the capital stock should be debt financed. It has been suggested by the Ontario Treasury that 1973-4 was a period of full employment. If we adjust for discretionary fiscal policy and the effect of the business cycle on the budget, a budget balance of approximately -$300 million to -$400 million would appear to be the 'passive' outcome of the budget structure.[10] This is approximately 4 to 5 per cent of total expenditure. Assuming that a full-employment deficit of this relative magnitude has occurred over the 1972-82 period, and given our estimate of net investment, Table 9 provides the pattern of net investment expenditure and 'full employment' deficits for the 1973-82 period. It must be emphasized again that it is possible that expenditure on capital assets might well have been less if the economy had operated at close to full employment throughout this period. Consequently, the net investment figure may be an overestimate. In addition, our estimate of the full-employment deficit may be less than what might have occurred given the significant change in the elasticity of the personal income tax in the latter half of the 1970s and into the 1980s.[11] What these rough data do suggest is that the budget structure does produce a deficit at full employment. Given that there has been net investment in this period, and given the present accounting practices of the government, such a deficit is quite compatible with this investment.

IS ONTARIO'S TOTAL DEBT MANAGEABLE?

While the extraordinary events of the past five years may go some distance to explain why deficits have increased and become so persistent, there remains the nagging question: Has the public debt, nourished by these deficits, become unmanageable?

Statistics on government debt, like statistics on prices, productivity, and profits, are subject to broad interpretations (and misuse) unless one is precise about what is allegedly being measured. Since we shall be referring to a variety of concepts of public debt, it is important that the terminology be clarified at the outset.

Public debt, in its broadest interpretatiopn, refers to a future financial obligation on the part of the public sector. In the Province of Ontario, this obligation encompasses the debt incurred by the decisions of the legislature, by the crown corporations of the government, and by local governments, which are incorporated by the province.

Most of Ontario's public debt is funded debt, meaning that the financial obligation is backed by notes and debentures. Debt is unfunded if

TABLE 9
Net investment and structural budget result ($ millions)

Year	Structural hypothetical budget deficit at full employment	Net investment in capital assets[a]	Total investment
1973	240	654	935
1974	287	607	920
1975	352	638	1,029
1976	380	788	1,272
1977	444	619	1,126
1978	472	709	1,313
1979	528	672	1,246
1980	608	722	1,416
1981	660	665	1,447
1982	752	697	1,621

[a] Gross figures were adjusted by using the ratio of net provincial investment to total provincial investment in Statistics Canada (1981).

there is no specific term to maturity and no security instrument. For example, there are certain obligations to the Public Service Superannuation Fund but no provincial debt instrument backing these up. Funded debt is usually direct or guaranteed. Direct debt involves the issue of a bond, note, or security in the name of the Province of Ontario, while guaranteed debt is issued in the name of a crown corporation (such as Ontario Hydro). While some funded debt is not guaranteed (but considered part of the consolidated public sector debt), the distinction may be nominal. The unguaranteed public debt in the province is largely limited to the local public sector, and it is difficult to imagine a situation in which the province would permit a local government to default on its debentures. As of 1982, approximately 85 per cent of total Ontario debt was funded; of that funded portion, 85 per cent was direct or guaranteed.

What do the data related to Ontario's public debt tell us about its manageability? One's ability to manage debt depends on the interpretation of the word 'manage.' Income flow, the certainty of that flow, and marketable assets are crucial factors in determining how a household can manage existing or additional debt. Given an uninterrupted flow of expected increasing income and/or highly liquid assets, manageability will be ranked high, with a credit rating involving a relatively low interest rate. In the corporate world, a similar analysis prevails, with cash flow and expected profits replacing wage income as criteria.

Can the same criteria be used for governments? Obviously, parallel comparisons can be made, but they are not strong. The 'capacity to service debt' is often measured by ratios such as debt per capita, debt as a percentage of personal income, and debt as a percentage of gross provincial product. They are not, strictly speaking, indicators of service capability unless nominal interest rates are constant over an extended period of time. A household mortgage of $50,000 over three or four years may, as a percentage of income, slightly decline, but if the interest rate on the mortgage goes from 11 to 20 per cent, debt to income is not a good measure of capacity to service debt in the short run. The standard measures noted above better describe capacity to redeem debt.

Since this paper is primarily concerned with the budget deficit (or surplus), which, as a result of its year-to-year changes, changes the total outstanding direct funded debt, we turn first to an examination of direct funded debt. In Ontario, direct funded debt on a per capita constant dollar basis increased at an average rate of 6.5 per cent per year from 1971 to 1978 and then began a slow decline. As a percentage of GPP, debt rose from 15.4 to 18.8 per cent between 1971 and 1978 and has declined to a little over 17 per cent.

The increases in real per capita direct funded debt and direct debt as a percentage of GPP are, in our opinion, very modest in view of

- the need to maintain capital expenditure increases to ensure that the public capital stock does not rapidly deteriorate,
- the slowdown in economic activity, which has induced a decline in revenue growth, and
- the unprecedented increases in interest rates and the effect that these rates have had on the current expenditure side of the budget.

As was suggested earlier, it would be unwise when speaking of debt management to ignore guaranteed debt and even unguaranteed debt that is placed under the umbrella of consolidated public debt. A small increase in direct debt due to a budget deficit might be cause for concern if other forms of debt have been accelerating rapidly. In Table 10 we have included guaranteed debt in columns 4 and 5 and added the figures to direct debt giving totals in columns 6 and 7. The relative increase in guaranteed debt on a real per capita basis or share of GPP has been moderate, and the total funded debt figures show an increase up to 1978 and slight decline since then.

Finally, Table 11 records and Figures 9 and 10 illustrate the growth of total public debt; that is, direct, guaranteed, and unguaranteed debt, the last encompassing local government debt. These data, like those in Table 9, reveal that total debt as a percentage of GPP or in real per capita terms grew until the late 1970s and has since declined. While it is not guaranteed in the formal sense, we have suggested that local government debt is, for all intents and purposes, guaranteed debt. The consolidated, aggregate data suggest there is very little reason to be concerned about Ontario's debt at this time. The precipitously high interest rates of 1979-82 have created problems of debt management, but these problems should disappear with a return to more moderate interest rate levels.

SUMMARY AND CONCLUSION

The Ontario budget, like other public sector budgets, has been buffeted by both the high interest rates of the late 1970s and early 1980s, and the severity of the current recession. These events, cyclical in nature, have caused interest expenses and welfare payments to rise and induced slow revenue growth, producing deficits that in absolute terms are large by historical standards. Judged over a longer time horizon and in relationship to total public expenditure or gross provincial product, the deficits are not alarmingly high.

If adjustments are made for the cyclical effects, both recession and high nominal interest rates, and if one takes into account the role of the province in providing for essential public investment, the budget structure is, at the present time, sound. The only caution we would raise at this time is with respect to the full-employment norm in the longer run. If the 'working definition' of full employment over the remainder of the 1980s is going to be significantly beyond the 6.5 per cent unemployment figure, then it may be necessary to sustain a small structural deficit or realign expenditures and revenues. The choice will obviously depend on a variety

TABLE 10
Direct and guaranteed funded debt: Ontario 1971-82 (National Accounts basis)

Year	Direct funded debt		Guaranteed funded debt		Total	
	Real debt[a] per capita $	Debt as % of GPP	Real debt per capita $	Debt as % of GPP	Real debt per capita $	Debt as % of GPP
1971	793	15.4	345	6.7	1,139	22.0
1972	900	16.5	350	6.4	1,249	22.9
1973	928	16.1	357	6.2	1,285	22.3
1974	930	15.5	347	5.8	1,278	21.3
1975	1,028	17.6	364	6.2	1,392	23.8
1976	1,038	16.8	438	7.1	1,476	23.9
1977	1,087	17.6	445	7.2	1,531	24.8
1978	1,153	18.8	448	7.3	1,600	26.1
1979	1,142	18.2	430	6.9	1,572	25.1
1980	1,109	17.9	431	7.0	1,540	24.9
1981	1,127	17.3(e)	436	7.1	1,563	24.4

a Nominal debt deflated by Consumer Price Index; 1971 = 100.0

TABLE 11
Total funded debt Ontario 1973-4 to 1981-2 (includes local government)

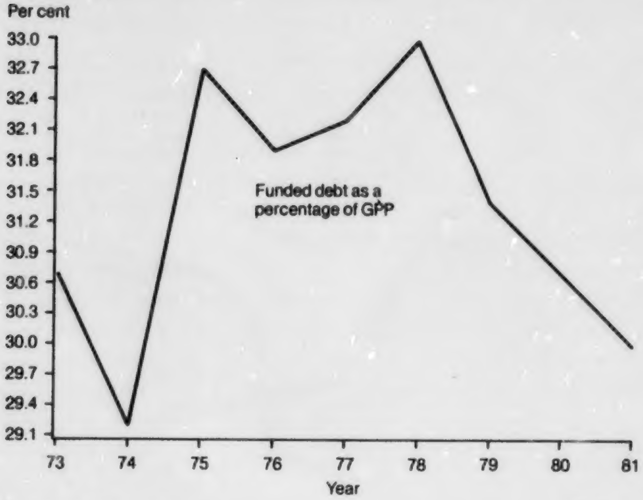
Year	Funded per capita debt in constant dollars[a] ($ millions)	Funded debt as a percentage of GPP
1973-4	1,710	30.7
1974-5	1,695	29.2
1975-6	1,855	32.7
1976-7	1,896	31.9
1977-8	1,933	32.2
1978-9	1,975	33.0
1979-80	1,918	31.4
1980-1	1,851	30.7
1981-2	1,807	30.0

a Fiscal year figures deflated by Consumer Price Index, 1971 = 100.0.

SOURCE: Miller (1982b, 17).

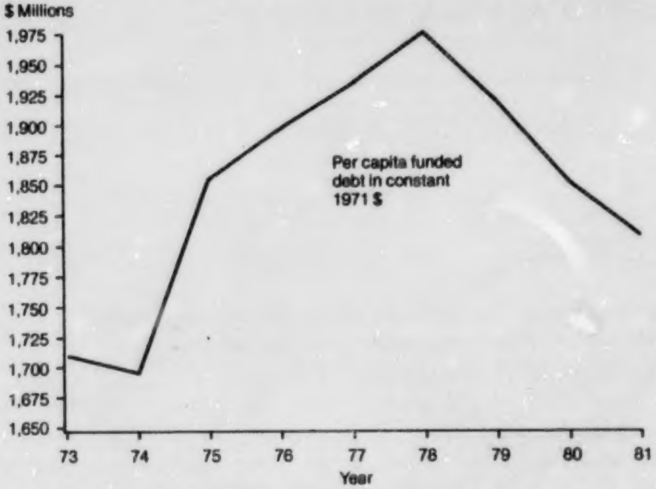
of circumstances, and, to ensure that any adjustment will minimize transition costs, the question should receive serious attention in the near future.

Figure 9
Debt management capability, Ontario 1973-4 to 1981-2



SOURCE: Miller 1982.

Figure 10
Debt management capability, Ontario 1973-4 to 1981-2



SOURCES: Miller 1982; Statistics Canada, *Prices and Price Indexes.*

APPENDIX

CALCULATION OF THE IMPACT ON THE BUDGET BALANCE OF DISCRETIONARY FISCAL POLICY, 1978-9 TO 1981-2

Expenditures

The change in expenditure due to discretionary policy was estimated as

$$\Delta G^d = G^g_t - G^g_{t-1} + [G^s_t - (G^s_{t-1})(1+\delta)]$$

where

ΔG^d is the change in expenditure due to discretionary policy;
G^g is government expenditure on goods and services;
G^s is government expenditure on transfer payments;
δ is the coefficient associated with the 'automatic' growth in various transfers. For example, in the case of income support transfers, the factor was the the growth rate from one year to the next in the number of citizens over 65 years of age.

Taxes

The Treasury provides an estimate of the effect of all important tax changes on revenue in the coming year. It also estimates the total change in tax revenue for each revenue source. Ex post, there is only the actual change in total tax revenue.

We have therefore computed an adjusted effect of discretionary tax changes, $\Delta \overset{*}{T}^d$, in the following manner:

$$\Delta \overset{*}{T}^d = (\Delta \hat{T}^d)(\Delta T^{act}/\Delta \hat{T})$$

where

$\Delta \hat{T}^d$ is the estimated revenue effect of the tax change;
ΔT^{act} is the actual change in tax revenue;
$\Delta \hat{T}$ is the estimated total change in tax revenue.

NOTES

1 See Organization for Economic Co-operation and Development (1980), volume 2, and Council of Economic Advisers (1981).

2 Due to changes in reporting procedures and accounting practices, data from the 1950s and early 1960s are not strictly comparable with recent expenditure figures. In earlier years, certain data on expenditures were reported as 'net' figures (after subtracting revenues directly applicable to the expenditure function).

3 This is an underestimate, since it assumes that nominal public debt would be the same as it actually was. If inflation had averaged 3-4 per cent, the need to raise nominal debt to achieve some target real debt would have been reduced and public debt would have been less than actual.

4 As an aside, the inclusion of total interest in the current budget is also misleading in terms of compensatory fiscal policy and the impact of the deficit on the economy in a period of stagflation. Again, let us consider a simple model for the purpose of exposition. If the government sells $100 million worth of bonds in order to expand current spending and stimulate the economy, it must (if the inflation rate is 7½ to 8 per cent) use $10 million of the proceeds for interest payments. Bondholders are not likely to treat the $10 million as an addition to current income: they will need to add $7.5 to $8.0 million to their investments to ensure the constant real value of their bonds.

5 An alternative adjustment is to estimate the real rate of return ($\bar{r}$) each year by calculating ($r-\dot{p}$), where r is the nominal interest rate and $\dot{p}$ is the rate of inflation, and multiplying net outstanding debt by r to obtain real interest payments. This is labelled 'real interest rate adjustment' in Figure 6.

6 The FEBS technique removes, in part, the effect that changes in economy activity have on the budget result. This permits the analyst to make a relative measure of the impact of discretionary policies on the economy. In a very simple model, the budget balance (B) is the difference between revenues and expenditures or

$$B = T - G$$

where

$$T = \bar{T} + t.Y$$
$$G = \bar{G} - g.Y$$

where $\bar{T}$ and $\bar{G}$ are autonomous taxes and expenditures, t is the tax rate, g is the rate of transfer payments associated with the level of economic activity, and Y is GNP.

If the government does nothing, the budget balance will rise (greater deficit) as Y falls and vice versa. The FEBS measures changes in B when Y is fixed at potential GNP.

7 This is not entirely true in a growing economy because the full employment level of GNP would rise from period to period, inducing higher and higher revenues.

8 'Unweighted' refers to the absence of a coefficient on any tax and expenditure variables that would represent the 'first round' impact of change in that variable on aggregate demand.

9 This would not be the case if a significant share of capital spending during periods of economic slowdown had been legislated as a short-term measure to combat unemployment.

10 These estimates accompany McKeough (1977).

11 In the 1979 Ontario budget, it was reported that the elasticity of the provincial personal income tax with respect to GPP had declined from 1.32 in the early 1970s to 0.4 in the 1977-9 period. While the decline was clearly due to relatively slower growth in personal income, the introduction of indexation in 1974 introduced a structural change to the tax system that reduced elasticity (see Miller 1979, C-7).

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W. R. White*

Professor Auld's paper is an interesting and useful one, particularly for anyone who, like myself, knows little about the fiscal position of the provinces. Yet it must be said that it is also a very 'traditional' paper in terms of the methodology it employs. Is the deficit too high? A large number of economists, including Professor Auld, contend that the answer can be found by taking the actual deficit number and adjusting for (a) cyclical effects on revenues and expenditures, (b) inflation effects on the cost of debt service, (c) capital expenditures, etc. If the resulting number is positive, the conclusion frequently drawn is that there is no 'structural' problem, and for some it seems but a small step to go even further and conclude that in such circumstances 'discretionary' fiscal stimulus should be applied.

This whole approach to analyzing deficits makes me uneasy. It seems to me to give enormous importance to what is, after all, only a single number describing the state of a very complex economy. Furthermore, the adjustments carried out do not always seem to me to be based on any explicit statement of what it is that is worrisome about big deficits. If we are after better measures of the supposed inimical effects of government deficits, then surely we must begin by specifying exactly what these effects are. Indeed, if there are numerous sources of concern (say, inflation, crowding-out, and debt-servicing capacity), then the specific form of the adjustments must depend on the source of concern identified. Professor Auld does indeed mention some reasons why people are concerned about deficits, but such considerations should be at the very heart of his methodology - not just mentioned in passing.

At the risk of some oversimplification, let me now distinguish two kinds of concerns about deficits, try to describe why economists make the adjustments that they do make in each case, and finally point out some of the difficulties inherent in making these adjustments. I will refer to Professor Auld's paper throughout, since his concerns about deficits seem to fall into both camps.

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DEFICITS: CONCERNS ABOUT INFLATION AND CROWDING-OUT

Most people's worries about deficits seem to arise from a simple proposition. _If_ the economy were at full employment and _if_ the government increased its deficit and _if_ the resulting private income were not wholly saved, then unpleasant things would happen. _If_ the deficit were monetized, then inflation would increase. _If_ the deficit were not monetized, then real interest rates would tend to increase and public expenditures would tend to crowd out private expenditures for either fixed capital formation or (in small, open economies) the consumption of domestically produced tradeable goods.

The various adjustments made to the deficit numbers by Professor Auld and others constitute an attempt to modify reality to see what the potential for inflation and/or crowding-out would be if any or all of these hypothetical conditions really existed. The number of _ifs_ that I have just enumerated gives some idea of how robust I believe this methodology to be; the answer is, not very. Having said this, I must add that even so I prefer adjusted deficit numbers to raw deficit numbers, which are also subject to misinterpretation. Nevertheless, concerns can be raised about each of the adjustments Professor Auld suggests.

Cyclical adjustments to deficits

Professor Auld uses cyclical adjustments of government revenues and expenditures to ascertain what the deficit would look like in a world of full employment. This is now standard procedure and well worth doing, but it bears repeating that it is an exercise fraught with hazard.

First, there is the issue of _measuring potential_. Most of these measures tend to be little more than extrapolations of recent trends. Recent experience shows that such _ex post_ measures are a risky basis for policy prescriptions. Indeed, at the national level, many economists have been revising their estimates of potential downwards almost continuously since 1976. Thus, estimates of full-employment surpluses made in 1976 would in retrospect now have to be considered full-employment deficits. Second, this approach really assumes an instantaneous return to full employment, with the result that the issue of debt accumulation during the recession can safely be ignored. Recent experience and future prospects imply that this approach may be overly optimistic. Ontario could have a full-employment surplus today, but if its actual deficit is expected to stay very large for a long time, then the associated implications for debt service should to some degree condition current policies. Moreover, the size of this problem will be aggravated to the extent that there is a lot of debt to begin with, and to the extent that the real rate of interest exceeds the real rate of growth of the economy - whatever its level. This complication's potential for creating longer-run difficulties should not be underestimated, much less ignored, as is the case when 'cyclical' adjustments are made to deficits to reveal the 'underlying' or FES position. In my judgment, the only practical way of dealing with this particular (dynamic) problem is to generate a sensible medium-term projection for the Ontario economy that incorporates tax and revenue functions and alternative assumptions about real growth and interest rates. Then one can look at the longer-run evolution of the financial variables of interest (in particular, deficits, debt/GNE, etc.) and see whether the trends do seem worrisome for those concerned about inflation and/or crowding-out.

The inflation adjustment to the deficit

Those concerned with monetization of deficits or crowding-out do recognize that the capacity of a deficit to increase total spending may be offset by increased private saving. This is where the inflation adjustment comes in. To the extent that inflation erodes the real worth of private assets (public liabilities), the private sector should save more (in principle out of inflated interest income) in order to offset this effect.

In principle, this adjustment should also be made. Yet the practical problem is how to measure the increased saving caused by higher inflation. This is not an easy task, as those who have attempted it (in particular, Greg Jump) will attest.[1] Professor Auld's calculations use ex post inflation times the stock of existing debt, but this does presume that the demand for real debt is independent of the inflation rate and that all inflationary expectations are realized. These are very strong assumptions.

By way of a summary example, suppose that inflation had been unexpected and that interest rates increased only after the event. All existing bond-holders would be nursing memories of big losses. Is it obvious that they would now be inclined to buy still more government bonds because the real value of their government bond portfolios had fallen? While this must, of course, happen over the longer run, the transition path to that long run could be characterized by quite different savings behaviour.

The capital stock adjustment to the deficit

Those concerned about deficits leading to crowding-out of private investment might well be tempted to adjust the deficit to the extent that it is financing public capital formation. This adjustment makes sense at least to the extent that private capital formation and public capital formation carry similar rates of return.[2] Again there are difficult measurement questions to answer (in particular, with respect to the treatment of human capital), but Professor Auld has mentioned most of them.

Conclusion

All of Professor Auld's deficit adjustments seem appropriate in principle if one is worried about the prospects of public sector deficits crowding out private spending. In practice, there are substantial difficulties involved in making such adjustments, and they should be treated with caution.

I also wonder if concern about crowding-out provides the best starting place for the analysis of a provincial government deficit taken by itself. Does the Ontario government have significant capacity to raise levels of economic activity in the province (through an increased deficit), and hence levels of interest rates and the level of the exchange rate? The first link would seem somewhat problematical, given the degree of import leakage in an economy as open as that of Ontario's. As for raising interest rates generally, it seems more likely that Ontario government deficits would raise Ontario government bond rates, relative to others, than that there would be a general increase in the level of rates. While associated capital inflows (provincial bond issues abroad) might in fact raise the exchange rate and thus crowd out expenditures on domestically produced tradeable goods, I believe this would be a temporary rather than a permanent phenomenon.[3] The conclusion to be drawn from all of this is that, adjusted or unadjusted, the size of the Ontario deficit should not be a source of great concern for those who are principally worried about crowding-out. Whether the same conclusion could be drawn were we to consider the deficit position of, not one, but all ten provinces taken together is, of course, a different issue.

DEFICITS: CONCERNS ABOUT BOND RATINGS AND MANAGEABILITY

Yet there are other reasons for being concerned about deficits, and it is with these reasons that an analysis of the Ontario budget position would, I think, more properly start. Deficits are important not because of the flows themselves, but because they contribute to a large stock of debt that may or may not be serviceable. From this perspective, adjustments to actual deficit figures are still warranted, but they may in some cases have to be made rather differently. What we are concerned with now are the costs of servicing the real net liabilities of the government sector, relative to the capacity of the government to tax.

Inflation-adjustment

From this perspective, the deficit should be adjusted for the effects of inflation (but in this case using ex post inflation figures); the real liabilities of the government have fallen to the extent the price level has risen. This phenomenon can, however, be controlled for in a simpler way by adding actual deficit numbers to the stock of existing debt and then looking at the ratio of debt to GPP (nominal) over time. Since both numerator and denominator will be growing with inflation, this ratio should be unaffected by inflation. This approach also focuses attention directly on the stock of debt relative to some proxy for servicing capacity, which by assumption is what we are really concerned about in this case.

Capital expenditures

Here too an adjustment to the deficit is warranted, the point being that such capital expenditures are presumed to have a rate of return over time that would warrant their being undertaken. That is, they are in some sense self-servicing and do not increase the government's net debt service burden.

But again, if we are primarily concerned with the stock of net liabilities (governments' net worth), it might be better to just measure them directly rather than to impute something about stocks by adjusting flows. However, to put the matter this way immediately raises the question of why all the other assets and liabilities of governments are not also included in this balance sheet exercise. A good example of the assets would be the future taxes to be levied on RRSPs, and a good example of the liabilities would be the various forms of unfunded debt noted by Professor Auld in the last part of his paper.

A proxy for servicing capacity

Finally, if the capacity to service debt is what is at issue, then we need to address the tax base question directly. It is not obvious how the deficit could be adjusted to take this into account. Professor Auld relies on such stock measures as debt per capita and debt/GPP to get some handle on this issue. While this does take us a long way, the problem is clearly more complex than this. The initial level of taxes relative to GPP must also be taken into account in identifying potential servicing problems. Tax rates that are relatively low (compared, say, to the tax rates of other provinces or states) can be raised, if need be, whereas increases in tax rates already at high levels threaten to be counterproductive if capital and labour respond by moving elsewhere. I look forward to the rest of today's proceedings in the hope of hearing other suggestions about judging the 'creditworthiness' of Canadian provinces.

SOME MISCELLANEOUS ISSUES

Sign of fiscal multipliers

There are two statements from Professor Auld's paper that attracted my attention:

> Attempts to maintain the $50 million surplus by higher taxes or lower spending in the face of a recession would only deepen the recession and possibly contribute to a higher deficit in the short run.

> For example, an actual deficit of $500 million would have been larger if a tax reduction had not been implemented in that same year.

Both of these statements imply that tax increases increase deficits, presumably because they result in lower incomes and, consequently, lower tax receipts. I would like to put on record my belief that while such feedback effects do reduce the size of fiscal multipliers, they do not reverse their sign. One can, of course, conceive of perverse signs arising if deficits cause financial markets to push real interest rates up sufficiently, but (whether plausible or implausible) that is quite a different thing.

'Efficient' discretionary fiscal policy

Professor Auld suggests that 'efficient' discretionary fiscal policy always leans against the wind of cyclical movements. I would add one qualification to this, assuming one lives in a world in which automatic stabilizers are already designed to reduce the amplitude of cyclical movements. Logically, Professor Auld's suggestion seems in fact to imply that Ontario's automatic stabilizers have been inefficiently designed and should be made stronger. I wonder whether he would agree with this.

Balanced budgets and capital transactions

This is a small point but an important one. Professor Auld seems to imply that over the cycle the budget (perhaps after accounting for capital expenditures) should be balanced. However, in a growing economy there is a presumption that the demand for real financial assets, including the liabilities of governments, would grow at the same rate. A cyclically balanced budget would then, over time, result in a relative shortage of government securities in which to invest.

NOTES

1 The fact that personal savings behaviour has differed so widely in Canada and the U.S. since the middle 1970s, in the face of a broadly similar inflationary experience, also raises a warning. The implication is that we should be hesitant in making inflation adjustments to savings rates on the basis of simple propositions about the absence of money illusion.

2 This is fairly heroic in itself. Consider a range of public investments from bridge maintenance to Mirabel and the associated rates of return on each.

3 In my view, substitution between various assets should suffice over time to wash out the effects of increased supplies of any particular form.

Discussion

QUESTION: I'd like to ask Professor Auld if he thinks there's a case for legislating a requirement that some official agency of the provincial government be asked to carry out these adjustments in the best manner possible on a regular basis and publish them for public scrutiny.

D.A.L. AULD: The provincial government made some of the adjustments up to the period 1977-8. We have had discussions with people in Treasury with regard to the preparation of this paper, and I think the concern is the one that Bill White mentioned. That is, how can we get a handle on what is the appropriate full employment, full capacity operation of the Ontario economy right now? I don't think there is very widespread agreement as to what benchmark one would use for that particular adjustment. On the capital side, I guess I welcome the thrust in last year's budget speech, which made a strong case for public fixed capital expenditures. But I think there are still a number of issues to be resolved there. For example, do you include net investment in human capital as part of public capital formation? How do you get a comparable rate of return on capital? These are difficult issues, but I still think it would be useful in terms of accountability if provincial governments and the federal government too, were to establish separate capital accounts. This is done in a number of other countries. The one I am most familiar with is Australia, where for years they have had a separate capital account and, as well, a relationship between the current budget and the capital budget, which gives a much better idea of the role of the public sector in the formation of net capital.

I guess my answer would be yes, I think these adjustments should be made and these changes should be made. If there is difficulty in making them, then wave the yellow flag while you are doing it. But I do think if there were at least some measure, we would have a better accountability of where taxes are going and the role of deficit financing.

QUESTION: I have a question for Professor Auld. It wasn't clear to me whether your amount for funded debt included the amount owed to the Canada Pension Plan.

D.A.L. AULD: The direct funded debt, which is derived from the Ontario government's budget deficit, is funded in part by borrowing from the Canada Pension Plan and in part by borrowing from other government pension and superannuation funds. The arrangements for the borrowing, with respect to the term of the debt and the calculation of the interest rates, are set out in legislation. As you probably know if you have read the budget speeches for the last few years, the Ontario government has done no borrowing from the private capital markets for the purpose of financing its deficit. Of course, you can simply switch the thing around and say, 'if Ontario is borrowing from the Canada Pension Plan and superannuation funds, then those funds are not available to the private sector'.

Deficits and the economy to 1990: projections and alternatives

D. P. Dungan* and T. A. Wilson**

Much of today's concern with the federal deficit is not so much concern with what the deficit is right now - large though it is - but a concern about what the present figures mean for the future.

Will the current high deficit be even higher? Will it continue to balloon? Will it become runaway? Will it crowd out investment, stifle future recovery and growth, and possibly lead to a new burst of inflation? Or is it a transitory phenomenon that will disappear with recovery and subsequent economic growth?

Of course, the answers to these questions have great importance for the conduct of current fiscal policy. Is there room to manoeuvre or not? If so, for how long, and for what types of manoeuvres?

In an attempt to shed some light on these questions, we have developed a trend projection of the Canadian economy from current conditions through 1990.[1] As part of the overall projection, we obtain projections for the federal and consolidated government sector deficits that are consistent with the overall outlook.

It is important to note that this basic trend solution assumes no new policy initiatives. It does, however, make use of several key policy and external assumptions, which are described briefly below. In later sections of the paper, we consider some possibilities for new fiscal initiatives.[2] These policy 'experiments' indicate not only the effects of these initiatives on economic activity, but also their effects on inflation and on the deficit;

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hence they help to indicate how much room for fiscal manoeuvre may now exist.

Our method puts heavy weight upon econometrically estimated relationships within a consistent accounting framework. It is our belief that it is most important to quantify and use numbers to describe the relevant factors in a consistent fashion.

THE BASE-CASE PROJECTION

The base projection derives from two key elements. The first is the FOCUS model itself.[3] FOCUS is a medium-scale quarterly econometric model of the Canadian economy. It is by no means a simplistic Keynesian Model. In fact, it tends to be rather less Keynesian than most Canadian econometric models[4], in that it has strong neoclassical properties in longer-term analysis. It represents an accumulation of human capital, in the sense that what is placed on the computer is a codification of our learning about the economy over the years.

The second key element is the assumptions that we feed into the model for the current and future years of the projection.

The first set of assumptions, critical for this kind of exercise, is about what is going to happen in the rest of the world. Here we have drawn heavily upon a long-term trend projection for the United States that was released by Data Resources Inc. in December 1982.[5] In this projection, real growth in the U.S. for the 1983 to 1990 period averages about 3.5 per cent, with price inflation over the same period at about 6 per cent.

Given recent world oil price developments, these figures may represent an unduly pessimistic outlook for inflation in the United States. In an alternative experiment, reported in Appendix B, we examine the sensitivity of the base projection to a lower inflation rate.

With respect to world oil prices, we assume a 12 per cent decline this year, flat prices in nominal terms in 1984 and 1985, and a resumption of gradually rising relative oil prices over the remainder of the projection interval.[6]

As for domestic energy prices, we assume that there will be a federal-provincial compromise on the oil-price question, with domestic oil prices rising to 90 per cent of world prices from the current 75 per cent, phased in over a three-year period in 5 per cent steps. Under these assumptions the domestic oil price in Canada never has to decline.[7]

Of the oil mega-projects, only Hibernia is incorporated in the base case, since it is assumed to be viable even with the projected lower prices. We also include a number of smaller-scale oil projects coming on stream, as well as pilot projects and experimental projects, which help to keep up the level of energy sector investment.

We assume that the Bank of Canada will conduct monetary policy to accommodate about 6 per cent inflation with about 4 per cent real growth. Note that this result does not imply a steady 10 per cent rise in the money supply every year. While the increased demand for money that will accompany disinflation must be accommodated by additional growth of the money supply over the next two years, we assume that continued innovations in the financial markets will allow the income velocity of M1 to increase thereafter at about 2.5 per cent per year.

As noted above, we assume no new fiscal initiatives. We have incorporated the six-and-five restraint program, subsequent income tax indexing, the UIC contribution rate increases that went into effect on 1 January of this year, and, subsequently, a return to the system of annual adjustments to the UI contribution rate.

However, we have had to make some assumptions about future government expenditures. These assumptions are depicted in Figures 1 and 2. Figure 1 projects government expenditures on real goods and services as a percentage of real GNP. As is apparent, this ratio declined over time until 1981. During the recent severe recession, real GNP went down, so that the ratio took a sudden upturn in 1982. We assume that it will decline again as recovery takes place. Thus, over the projection interval, we assume a gentle downward trend for government expenditures in relation to aggregate output. The important thing to note here is that we are not assuming anything radically different from the recent past. For several years now, the share of real government spending in real GNP has been gradually declining.

When we examine total government expenditures, the story is somewhat different. These expenditures include all transfer payments and interest on the public debt as well as purchases of goods and services. In relation to nominal GNP, total expenditures experienced a more dramatic upsurge in 1982 than expenditures for goods and services alone: not only did GNP go down, but interest payments and some transfer payments (notably UIC payments) went up.

Figure 1
Real government current and capital spending as percentages of GNP

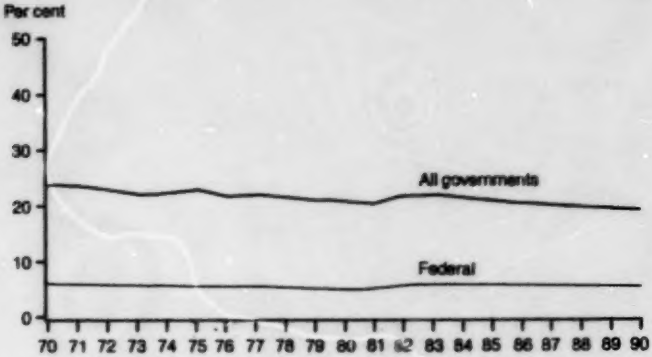
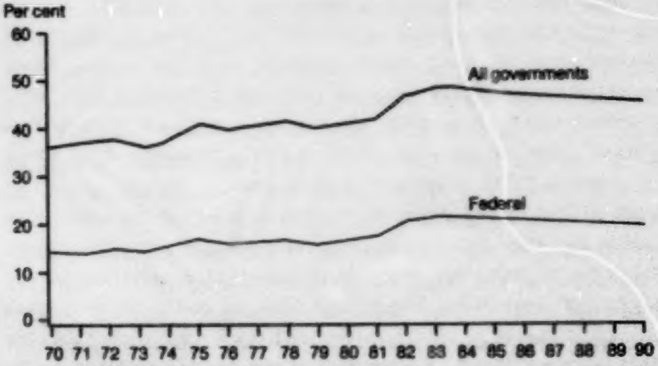


Figure 2
Government total expenditure as a percentage of GNP



The recent large increases in interest payments on the public debt are in part a reflection of the impact of inflation upon interest rates. As noted below, when deficits are adjusted to remove this inflation-induced accounting distortion, the picture changes dramatically. Given a reduction of interest rates and gradual recovery in the projection, total expenditures also begin to decline as a percentage of GNP.

So much for key assumptions. Let us now briefly review the results.

Figure 3
Real GNP growth rate

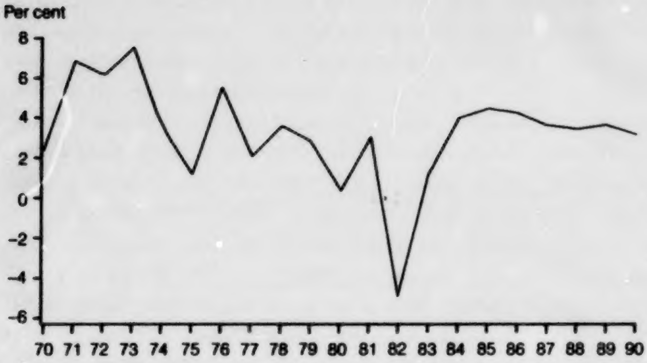
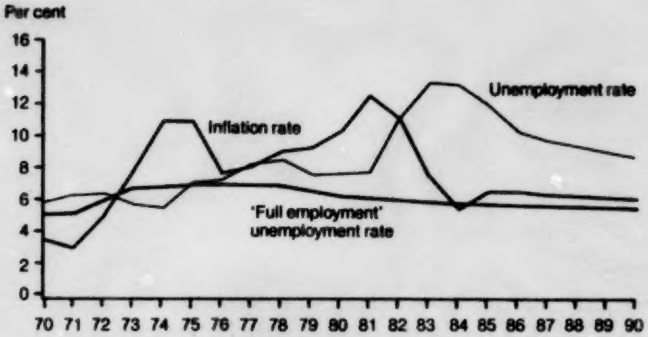


Figure 3 plots real GNP growth over the projection interval. As is apparent, there is a recovery, albeit a very mild one, this year, with real growth averaging just 1.3 per cent. However, 1984 witnesses a more vigorous recovery, with real growth of 4.1 per cent. Over the remainder of the projection interval, real growth averages 3.9 per cent. These growth rates are somewhat above Canada's estimated potential growth rate, but it is important to recognize that, after a deep recession such as that of 1982, several years of above-potential growth are required to bring unemployment down to its equilibrium or natural level.

The depth of the recent recession is also apparent in the projections regarding capital formation. Under the base case scenario, real investment growth looks quite vigorous for every year after 1983; nevertheless, we are not back to 1981 investment levels until 1987 or 1988. We have gone down so far that it takes a long time to come back, and indeed for the near term this recovery is led by consumption and housing rather than by business fixed investment.

Figure 4 graphs the projections of the key policy objectives of inflation and unemployment. The spectacular rise in unemployment in 1982-3 stands out in the figure. Unemployment is projected to peak this year at just above 13 per cent, and to decline only gradually as recovery takes hold. (The most current data indicate that this rate might be slightly too high.) At the projection horizon in 1990, the unemployment rate is 8.6

Figure 4
Inflation and unemployment



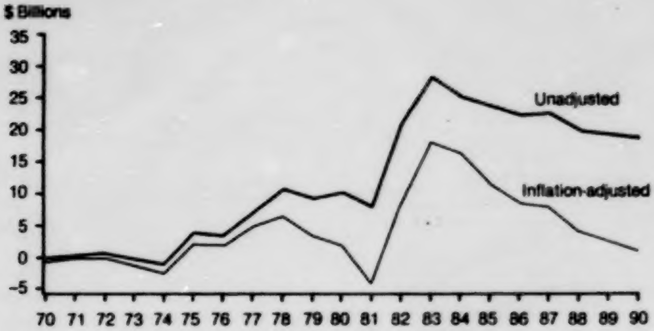
per cent, about 2-3 percentage points above its estimated equilibrium level for that year. The important story here is that there remains considerable excess supply in labour markets over the medium term.

The inflation rate has been coming down, and we project it to decline to a rate somewhat below 6 per cent in 1984 when a slight uptick returns it to about the 6 per cent level.[8] As noted above, this inflation rate may perhaps be too pessimistic in the light of recent price developments.

Figure 4 also depicts our long-term estimate of the 'full employment' or natural unemployment rate. As is apparent, this rate gradually diminishes over the decade. The primary reason for this result is demographic: there will not be as many people in the labour force in the high unemployment groups as there were before. Note that the unemployment rate in the base case scenario is above the estimated full employment unemployment rate at all times, indicating continued slack in the labour markets. This trend suggests that the inflation rate may come down somewhat more than we have projected - in the absence, of course, of any major external price shocks.

What are the implications of this scenario for the deficit? As Figure 5 shows, the projected federal deficit increases to about $28 billion on a National Income Accounts basis this year, and then gradually declines to about $18 billion at the projection horizon in 1990. However, the absolute deficit gives a somewhat misleading picture. A portion of this deficit simply represents the inflation component of interest payments on the

Figure 5
Federal deficit (NIA basis)



public debt. In addition, aggregate nominal GNP more than doubles over the projection interval.

Figure 5 also presents the inflation-adjusted federal deficit, which changes the impression of the problem. Although the adjusted federal budget does not return to the surpluses of a few years ago, the deficit does approach zero by 1990 under sustained moderate growth. Since the unemployment rate remains above its natural level at the projection horizon, the inflation-adjusted full-employment budget would be in a small surplus position.

There is another, more obvious adjustment to make: that is, to express both the unadjusted deficit and the adjusted deficit as a percentage of GNP, as shown in Figure 6. Obviously, the adjusted deficit still approaches zero in 1990, but the important thing is that the unadjusted number as a percentage of GNP does come down quite a bit over the period. It is still high - it still is obviously a positive deficit - but it comes down considerably more as a percentage of GNP.

Figure 7 presents the debt/GNP ratio, which is an approximate measure of the real debt burden.[9] As is apparent, this number fell from about 20 per cent in 1970 to about 10 per cent or less in 1974-5. Since then it has been rising. In our projections, it continues to rise through the mid-eighties as we continue to have very large deficits. However, it does reach a peak near 50 per cent in 1988.

There is no reason to believe that a debt/GNP ratio this high will

Figure 6
Federal deficits as a percentage of GNP

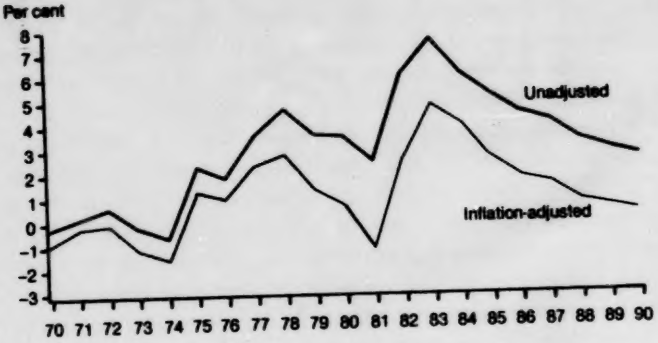
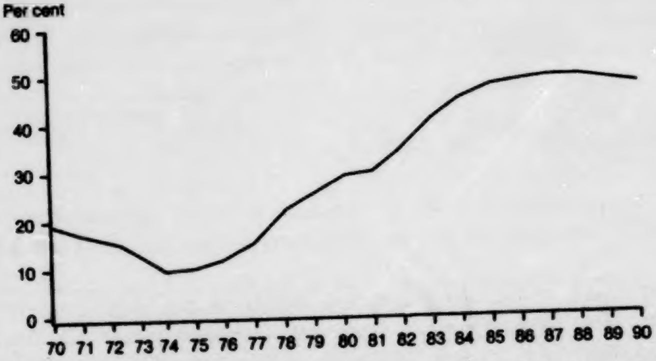


Figure 7
Federal debt as a percentage of GNP (estimate)



necessarily stifle our growth. We have had ratios higher than this before; indeed, they were higher for much of the entire postwar period - boom years for investment in Canada. The projected debt/GNP ratios are, therefore, in keeping with historical experience.

Figure 8 compares the aggregate deficit with the federal deficit, revealing the net surplus of the combined non-federal sector. This surplus drops near zero in the current recession but then increases again, partly on the strength of resource revenues.

There are some indications that, beyond 1990, and perhaps even in the late 1980s, the Canada Pension Plan contribution rate should be increased to make sure that the plan retains a comfortable surplus. Since we did not carry the simulation beyond 1990, we did not incorporate such an increase in the CPP contribution rate.

Figure 9 compares corporate and government financing, presenting a rough estimate of corporate finance requirements against the aggregate government deficit, both expressed as percentages of GNP. As is readily seen, the increase in this year's and next year's deficit is offset by a large decline in corporate financing requirements. Corporations have been burned badly by the recession and are carefully rebuilding balance sheets and restricting new investment commitments, at the same time that recession-induced reductions in tax revenues and increases in transfers swell the deficit. By the mid-eighties, corporate financial requirements are projected to return to the levels that we saw before the extraordinary run-up of the late 1970s and 1980s. When this occurs, it is important that the federal deficit be coming down. Indeed, it is necessary for the smooth growth indicated in this projection that the two lines cross in about 1985, with the federal government's borrowing requirements declining (in relation to GNP) to make room for the corporations as they begin to invest more and hence need to borrow more.

POLICY IMPLICATIONS OF THE BASE CASE

The base-case projection represents a scenario in which continued downward demand pressure on the price level is generated by persistent excess supply.

The existence of considerable excess supply in the near term, as evidenced by both unemployment and capacity utilization rates, indicates that there is room for near-term fiscal stimulus with little danger of significant short-term crowding-out through financial market or price level effects.

This does not mean that the medium-term consequences of increased federal deficits are no cause for concern. Efficient capital markets should take into account the longer-term consequences of federal fiscal actions. It is therefore important to design policy initiatives that have minimal

Figure 8
Aggregate and federal deficits as percentages of GNP

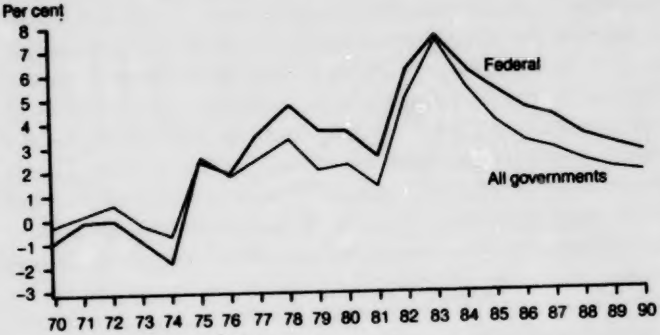
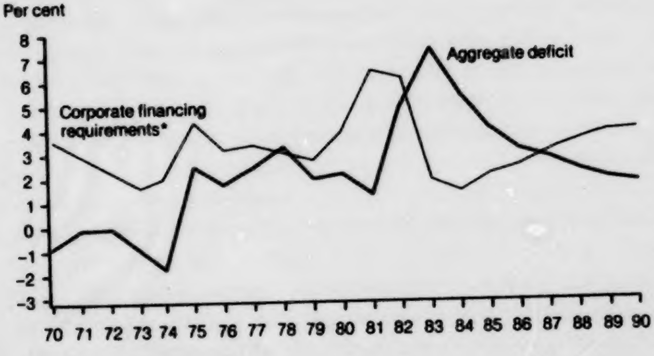


Figure 9
Government and corporate financing requirements as percentages of GNP



*Estimate: non-residential investment minus CCA's and retained earnings

effects on the structural deficit over the medium term.

Fortunately, there exists a variety of policy initiatives that would provide near-term stimulus without significant effects on the medium-term structural deficit. Expenditure programs that are explicitly temporary and temporary tax cuts to stimulate aggregate demand are two obvious examples. The problem in both cases is to make the temporary design credible to the financial markets.

There are also more permanent measures that would provide additional stimulus with little or no increase in the medium-term structural deficit. Measures to improve the automatic stabilizers - such as a reform of the Unemployment Insurance system to eliminate the perverse tax increases generated by the current statutory formula - represent one such set of policies. Another set is represented by tax measures designed to augment aggregate supply as well as aggregate demand over the longer run.

In the alternative projections, we consider examples of each of these three types of policy initiatives. In two of the experiments, we examine variations based on assumptions regarding price behaviour, the exchange rate, or monetary policy.

We first consider what might be called a traditional temporary demand shock via increased government expenditures - a 'standard' Keynesian policy. An attractive feature of this policy is that it can give fast pain relief; but not long-lasting relief - it is palliative only.

The second type of policy we examine is something more permanent - a policy that is directed towards the supply side in such a way that, by increasing potential supply, it could reduce its own inflationary impact and also mute its future deficit impacts.

The third type of policy we consider is one example of how an existing automatic stabilizer could be improved - giving a boost now but swinging the other way when a period of recovery with higher employment is well established.

POLICY EXPERIMENTS INVOLVING TEMPORARY EXPENDITURE INCREASES

The first pair of experiments basically involves an expenditure increase of $2 billion for 1983 and for 1984, partly in current expenditures and partly in capital expenditures. This is an example of a type of short-term job-creation policy.[10]

In the first experiment, the expenditure increase is bond financed. That is, we assume that the Bank of Canada holds to the same monetary course it follows in the base case - it does not let the additional government expenditure in any way alter the monetary growth rate. With no monetary response, some increase in interest rates is likely, and possibly some crowding-out of investment will occur.

Figure 10 depicts the economic effects of this bond-financed expenditure increase. As is apparent, under this policy GNP would be a half percent higher in 1983 than it would have been otherwise. In absolute terms, the policy yields approximately an additional $3 billion worth of aggregate output in 1984. The CPI would be a half per cent higher than it otherwise would have been in 1984.

Because this policy is a temporary one, it raises real GNP initially; however, once the policy stimulus is removed, real GNP actually dips below its base case levels for a short period, then gradually returns toward the levels of the base case. On the other hand, there is a permanent increase in the price level but obviously not in the inflation rate.

Figure 11 shows the impacts on the unemployment rate and rates of growth of output and prices. Note that the three variables are graphed as differences in percentage rates. For example, the figure indicates that in 1983 the real GNP growth rate (at 1.8 per cent) would be a half percentage point higher than it would have been under the base case (1.3 per cent).

The inflation rate would rise somewhat less than real growth in 1983, but it would continue to rise thereafter, adding almost an extra half percentage point on the base-case inflation rate in 1984. The inflation rate would then also return to base-case levels.

So the expenditure shock generates a temporary increase in the inflation rate as well as in GNP, and generates a temporary decline in the unemployment rate of somewhat less than half a percentage point. This assumes that a fair number of discouraged workers come back in as new jobs are created, but nevertheless it implies additional jobs on the order of 60,000 to 70,000 over the next two years. So even though the results are not spectacular, they indicate that we could at least get some additional output and some additional jobs from this policy, without a great cost in terms of inflation. Essentially, the policy involves a backward shifting of growth from 1985-6 to 1983-4. Provided that the policy is indeed reversible, it should have the contra-cyclical pattern of effects shown in the figures, with minimal effects on financial market expectations.

The impact of this policy on the deficit is not all that large. Figure 12 presents the impact of the policy on the federal deficit and federal debt expressed as a percentage of GNP. As is apparent, the federal deficit as a percentage of GNP initially goes up by something less than a quarter of a percentage point, and then comes back to the base-case ratio.

Figure 10
Bond-financed expenditure increase:
change in GNP and CPI

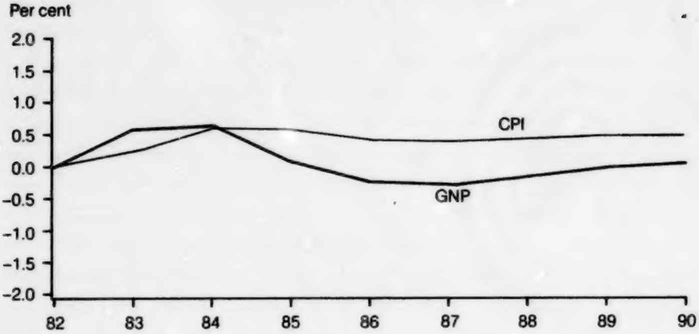
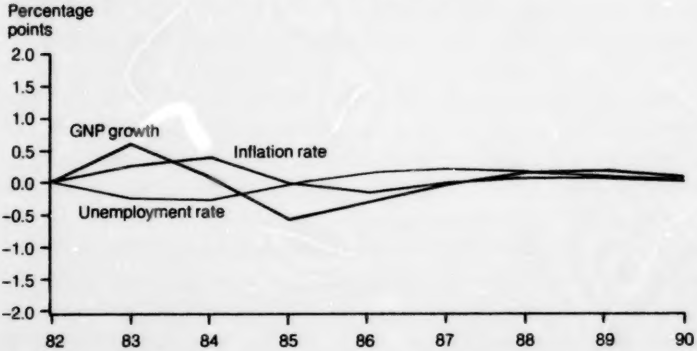


Figure 11
Bond-financed expenditure increase:
change in growth, inflation, and unemployment rates



The debt/GNP ratio goes down initially because nominal GNP goes up more than the debt does, so that the ratio actually comes down. In other words, the government has stimulated more nominal GNP than it has generated debt - although some of the GNP increase is real and some of it is simply inflationary.

In the second variation of the temporary expenditure-increase experiment, we assume that the expenditure increase is accompanied by an accommodative monetary policy that adjusts the money supply so as to hold short-term interest rates at their base-case levels. Such a policy should be feasible, given the transitory nature of the government expenditure increases.[11]

The economic implications of this 'money-financed' expenditure increase are portrayed in Figures 13 and 14. As is apparent, the impacts on all three policy objectives are somewhat larger than they are in the bond-financed experiment. The peak impact on real output is now a full 1 per cent in 1984, and the price level effects are above 1 per cent in 1985. There is a larger short-term reduction of almost one-half a percentage point in the unemployment rate.

Once the stimulus is removed, both real growth and inflation diminish, and indeed drop below base-case rates over the medium term. At the projection horizon, the economy is moving back towards equilibrium, though at a slower pace than in the previous experiment.

The fiscal implications of such a 'money-financed' expenditure increase are presented in Figure 15. As is clear, the immediate deficit effects are much weaker than they are in the bond-financed expenditure experiment, and the deficit/GNP ratio drops for a period during the mid-1980s as a result of the larger stimulus. It is notable that the debt to GNP ratio is below its base-case level in every year of the projection. This outcome reflects not only the larger stimulus to GNP provided by this alternative, but also the fact that more of the deficit is financed by money creation and hence does not enter into funded debt.

POLICY EXPERIMENTS INVOLVING INDEXING OF CAPITAL COST ALLOWANCES

We next consider a somewhat different policy, one that is intended to provide stimulus to supply as well as to demand. The particular policy we examine is full indexation of capital cost allowances under the corporate income tax. This approach effectively removes the negative impact of inflation on the real value of capital cost allowance deductions, thereby providing a powerful stimulus to increased capital formation. As Figure 16 shows, the resulting extra boost to business fixed investment generates a fairly healthy rise in real GNP, but this rise takes longer to occur than it does in the two temporary expenditure-increase experiments. Indeed, the peak impact on real output is not obtained until 1985.

Figure 12
Bond-financed expenditure increase:
change in ratio of federal deficit and debt to GNP

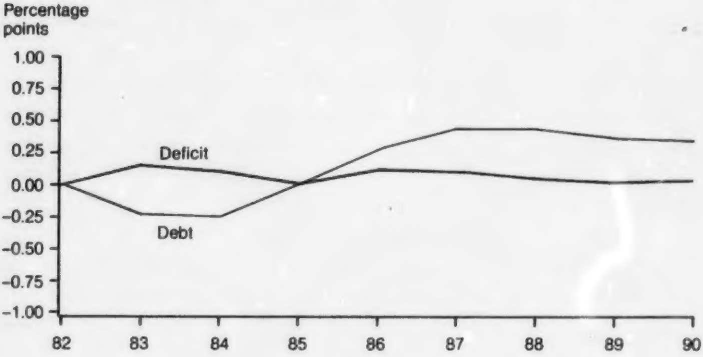


Figure 13
Money-financed expenditure increase:
change in GNP and CPI

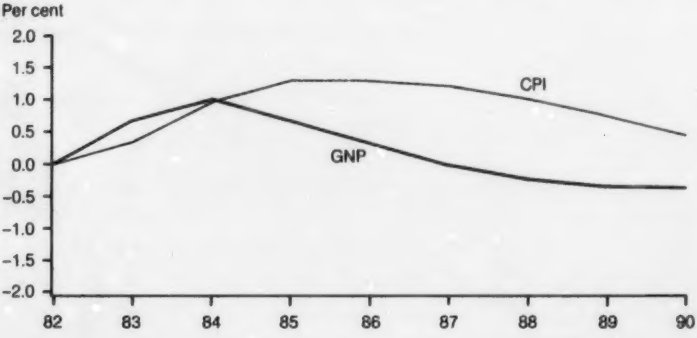


Figure 14
Money-financed expenditure increase:
change in growth, inflation, and unemployment rates

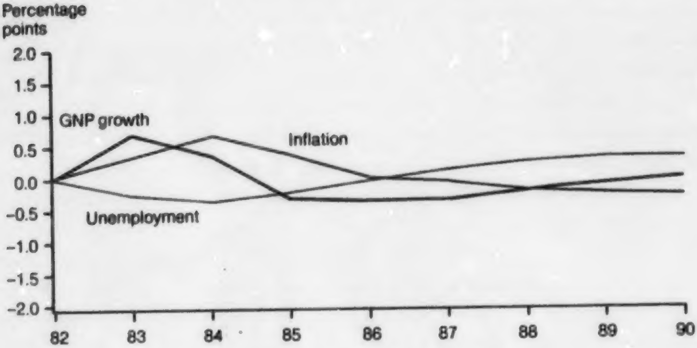
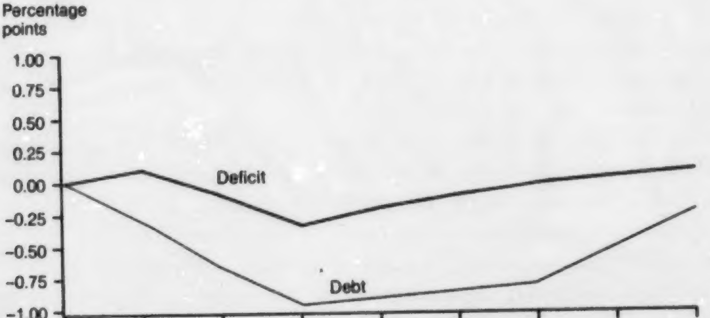


Figure 15
Money-financed expenditure increase:
change in ratio of federal deficit and debt to GNP



Unfortunately, the demand stimulus resulting from this more permanent shock also increases the rate of inflation over the whole projection interval, as is shown in Figure 17. However, this result is obtained using the model under a short-term 'markup' price setting mechanism that does not allow the productivity effects of the additional capital formation - i.e., the additional potential created - to feed through into additional output and generate downward price pressures. If instead we equip the policy with a more neoclassical price mechanism, whereby price is determined by demand and supply conditions, the inflationary impacts are not nearly as great (see Figures 19 and 20). As a matter of fact, the rate of inflation actually comes down for a while relative to base-case rates. We do observe an upsurge in inflation in the last year of the projection, but that turns out to be related to an exchange rate movement.

A third variation on the indexing of capital cost allowances combines the neoclassical price mechanism with a monetary policy regime that neutralizes any exchange rate impacts. As is clear from Figure 22, the economic impact of the policy is now a gradual increase in real aggregate output, combined with a gradual decrease in the price level. The impacts on the respective rates of growth are very modest, as is shown in Figure 23.

It is clear from these experiments that if the increase in potential stimulated by the policy change is allowed to feed through to productivity and unit costs, much of the inflationary impact is eliminated, while real output increases over the medium term.

Another interesting aspect of these experiments is that the deficit actually declines in the initial years. It does so because the indexing of capital cost allowances promises firms future lower taxes for investing now. Their investment today boosts tax revenues today and cuts transfers in the near term (via increased investment activity), thereby reducing the federal deficit instead of increasing it. In other words, by promising to reduce taxes later, when they would otherwise have increased through inflation, but by generating the benefits of the real stimulus that results from this reduction in the present, this approach actually produces a small downward movement in the near-term federal deficit. This improvement in the deficit relative to the base case naturally generates a near-term reduction in the federal debt/GNP ratio (see Figures 18, 21, and 24).[12]

Figure 16
Indexing of CCA with markup price rule:
change in GNP and CPI

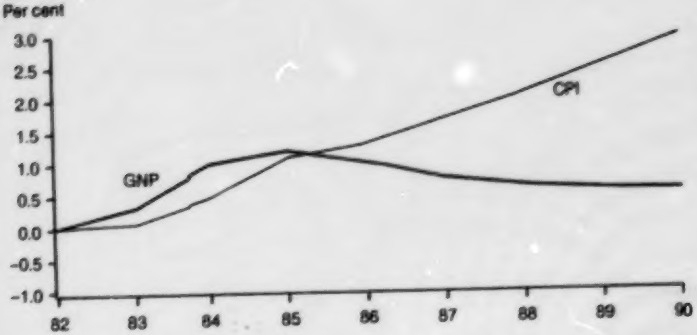
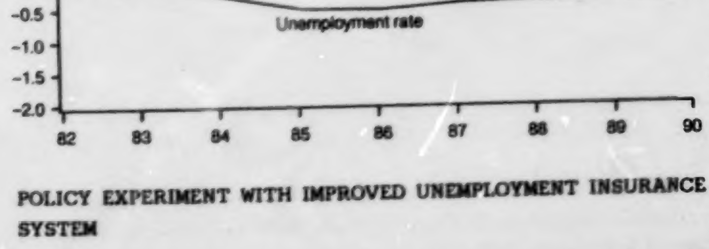


Figure 17
Indexing of CCA with markup price rule:
change in growth, inflation, and unemployment rates



POLICY EXPERIMENT WITH IMPROVED UNEMPLOYMENT INSURANCE SYSTEM

The final experiment involves a major change in the Unemployment Insurance system to restore it as an effective automatic stabilizer in the tax/transfer system. Note that under the current UI system the UI contribu-

Figure 18
Indexing of CCA with markup pricing rule:
change in ratio of federal deficit and debt to GNP

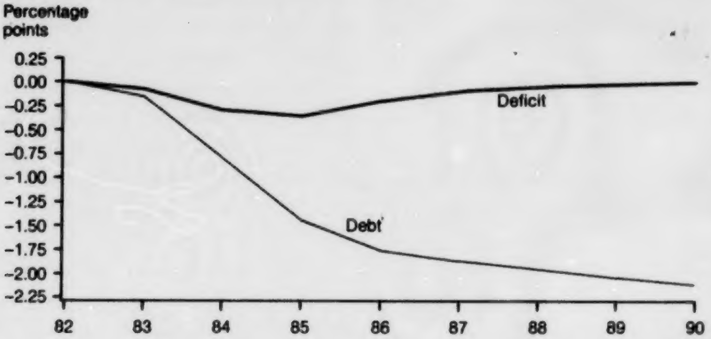
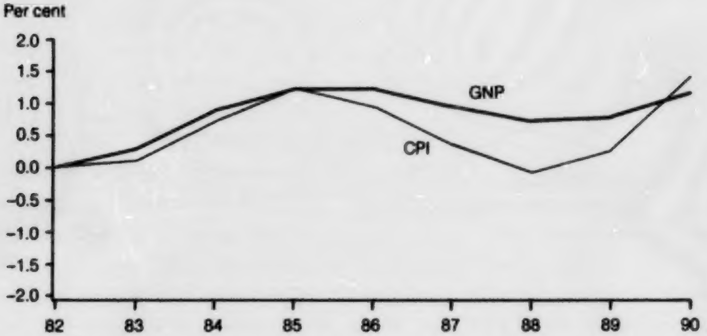


Figure 19
Indexing of CCA with flexible price rule:
change in GNP and CPI



tion rate is adjusted every year to eliminate (or partially eliminate) the previous year's deficit or surplus. There may be some advantage to adjusting the UI system to pay its own way over the longer term, but the current system adjusts it far too rapidly, reducing its automatic stabilizing properties.

In the present experiment, the rate of adjustment of the UI contri-

Figure 20
Indexing of CCA with flexible price rule:
change in growth, inflation, and unemployment rates

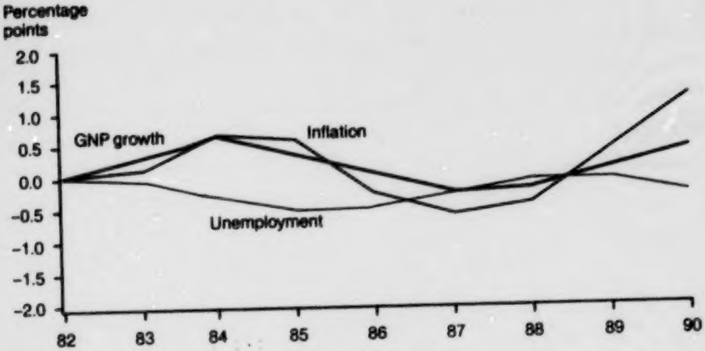
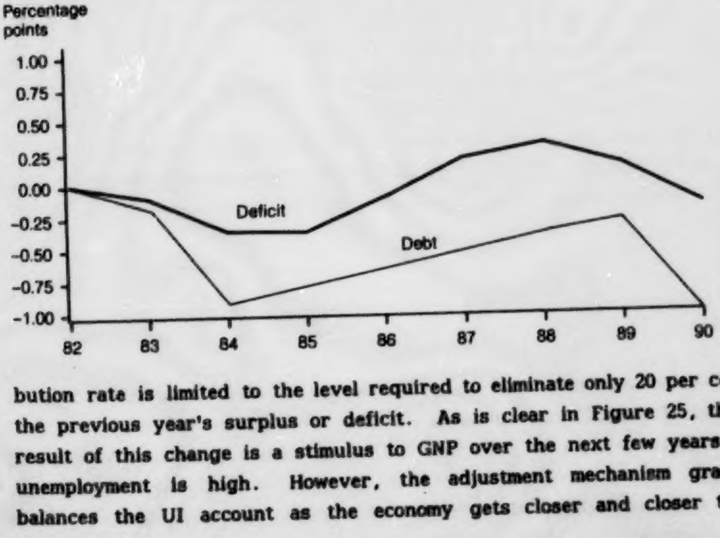


Figure 21
Indexing of CCA with flexible price rule:
change in ratio of federal deficit and debt to GNP



bution rate is limited to the level required to eliminate only 20 per cent of the previous year's surplus or deficit. As is clear in Figure 25, the net result of this change is a stimulus to GNP over the next few years while unemployment is high. However, the adjustment mechanism gradually balances the UI account as the economy gets closer and closer to full employment.

Figure 22
CCA indexation under flexible price rule and 'fixed' exchange rate: change in GNP and CPI

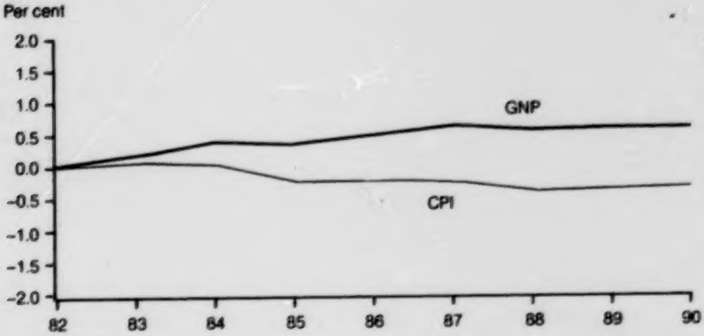
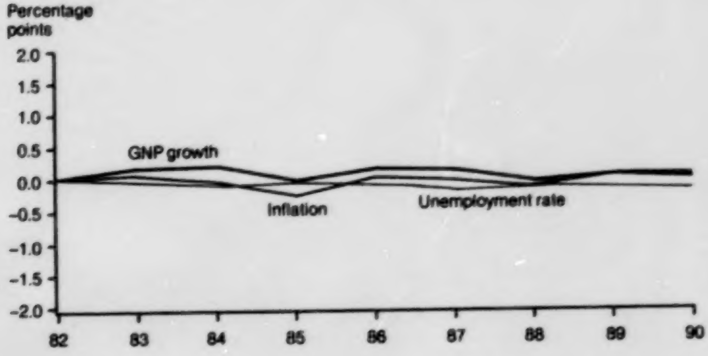


Figure 23
CCA indexing with flexible price rule and 'fixed' exchange rate: change in growth, inflation, and unemployment rates



This change has little impact on the price level. One reason why an inflationary impact does not occur is that over half of the total contribution to the UI fund is paid directly by employers, and any increase in employer contributions represents an increase in unit labour costs that tends to be marked up in higher prices. If this year's scheduled increase in UI contributions were reduced, there would be less of an increase in unit labour costs and consequently a downward cost push effect on inflation that would offset the upward pull on prices generated by the associated increase in output and employment. As a result, the inflation rate would hardly be affected at all, as is seen in Figure 26.

Figure 27 shows the impact of this change in policy regime on the deficit. For the next few years, obviously, the deficit increases, but as time passes the system adjusts automatically to bring the deficit down towards the base-case level. In fact, if we carried the projection to 1995, and got closer to full employment, the deficit would most likely be reduced below the base-case level.

OVERVIEW

Taken together, the six policy experiments indicate that there is room for manoeuvre by the fiscal authorities, given that the measures adopted do not increase the medium-term structural deficit. This room for manoeuvre exists because of the enormous excess supply created by the past two recessions. In the base-case simulation, this excess supply diminishes gradually over the decade, indicating that there would be little risk of re-accelerating inflation under these conditions.

Of course, should recovery proceed at a more vigorous pace, this margin of safety from rekindled inflation would disappear faster. However, in most of the above policy experiments, the price inflation effects moderate or reverse in the second half of the decade. The results therefore indicate that a carefully designed fiscal stimulus could help to speed recovery from the recent deep recession, without necessarily building in inflationary pressures in the later years of the decade.

Figure 24
CCA indexing with flexible price rule and 'fixed' exchange rate: change in ratio of federal deficit and debt to GNP

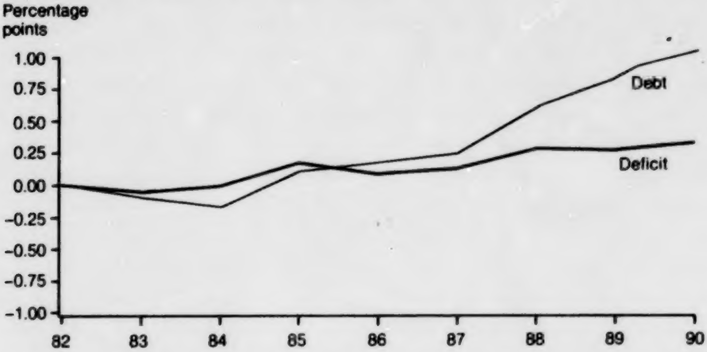


Figure 25
Modified UI system: change in GNP and CPI

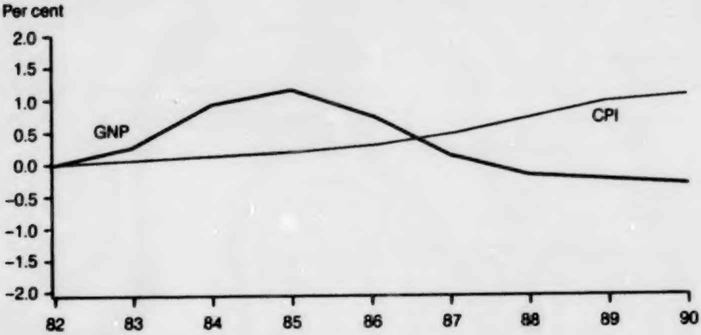


Figure 26
Modified UI system:
change in growth, inflation, and unemployment rates

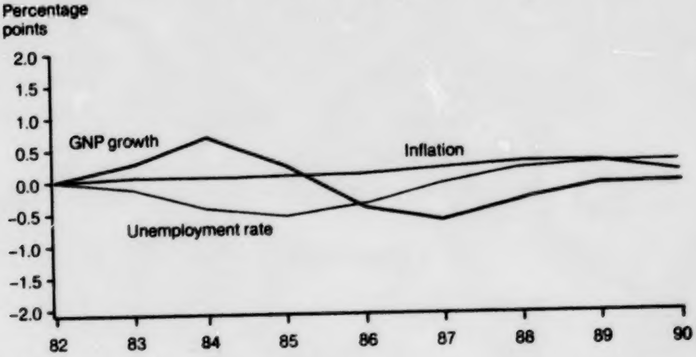
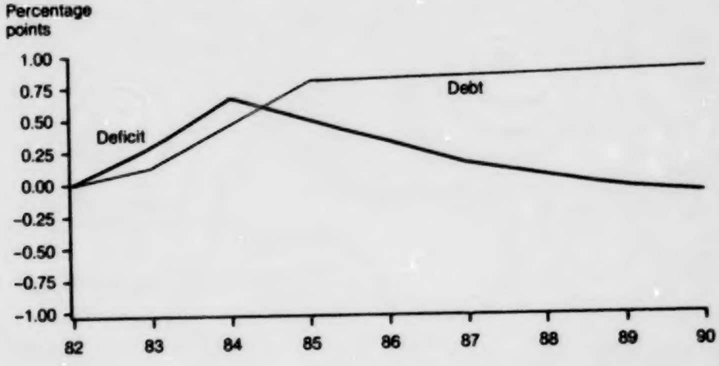


Figure 27
Modified UI system:
change in ratio of federal deficit and debt to GNP



APPENDIX A

BACKGROUND NOTES AND TABLES TO PROJECTIONS AND ALTERNATIVES

TABLE A1
Base case projection: summary table

	History		Projection			
	1981	1982	1983	1984	1985	Average 1986-90
Growth rates (% change)						
Real GNP	3.1	-4.8	1.3	4.1	4.6	3.7
Consumption	1.9	-2.5	1.1	3.6	4.5	3.9
Non-residential investment	6.4	-13.0	-17.6	11.3	9.9	8.1
Residential investment	5.6	-23.8	14.1	16.0	12.3	4.1
Government	.7	2.2	1.7	1.6	1.5	1.5
Exports	1.6	-1.5	1.8	3.7	5.4	6.2
Imports	2.6	-10.4	3.5	6.4	7.8	6.6
Employment	2.6	-3.3	-1.1	1.7	3.1	2.5
GNP deflator	10.1	10.7	6.9	5.5	6.0	6.0
CPI	12.5	10.6	7.3	5.4	6.4	6.2
Labour productivity	.4	-1.7	1.7	2.3	1.5	1.2
Money supply (M1)	4.3	2.3	10.3	9.1	7.5	7.5
Corporate profits (pre-tax)	-10.4	-32.1	22.6	50.2	24.8	15.4
Levels (percentages)						1990 level
Unemployment rate	7.6	11.1	13.2	13.1	11.8	8.6
90-day paper rate	18.3	13.9	9.9	9.6	10.0	9.6
Industrial bond rate	16.3	15.7	12.3	10.7	10.3	10.9
Exchange rate (US$/C$)	.834	.811	.815	.82	.826	.84
$ billions						
Current account of balance of payments	-5.3	2.7	6.7	5.1	2.4	-2.2
Aggregate government deficit	4.0	17.5	27.6	22.4	18.1	12.5
Federal deficit	8.0	21.1	28.3	25.3	23.9	18.9

TABLE A1 (continued)

	History		Projection			
	1981	1982	1983	1984	1985	1990
Federal deficit adjusted for inflation	-4.2	8.5	17.9	16.3	11.5	1.2
Per cent						
Federal deficit as % of GNP	2.4	6.1	7.5	6.1	5.2	2.5
Inflation-adjusted deficit as % of GNP	-1.3	2.4	4.7	3.9	2.5	.2
Aggregate deficit as % of GNP	1.2	5.0	7.3	5.4	3.9	1.7
Federal debt as % of GNP	29.4	34.0	40.1	44.5	46.8	47.0
	1981	1982	1983	1984	1985	Average 1986-90
Foreign (US) assumptions: (per cent)						
U.S. real growth	1.9	-1.7	2.2	4.4	4.2	3.2
U.S. inflation (GNP deflator)	9.4	5.9	5.2	5.7	6.2	6.3
U.S. industrial bond rate	15	13.9	10.6	10.4	10.6	10.3
						1990
Adjusted import price of crude oil (US$ at Montreal)	35.0	34.2	30.0	30.0	31.5	47.1

NOTES ON EXPERIMENTS

Experiment 1: temporary fiscal expansion

The figures in Table A2 are actual changes made in the model. They represent a current-dollar expenditure of $1.5 billion over the last three quarters of 1983 and the four quarters of 1984. The current-dollar capital expenditures are $250 million in 1983 and 1985, and $500 million in 1984. The employment figures were calculated from the above expenditures,

TABLE A2
Changes in exogenous variables to represent temporary fiscal expansion

	Federal current expenditure (millions of 1971$, annual rates)	Federal capital expenditure (millions of 1971$, annual rates)	Federal employment ('000)
1983:2-4	607.	111.	61
1984:1-4	429.	159.	43
1985:1-4	0.0	76.	10

TABLE A3
Experiment 1: Temporary Expenditure - 'Bond-Financed'

Change in:	1983	1984	1985	1986	1987	1990
Real GNP (millions of 1971$)	756	858	86	-376	-464	57
% of base	.58	.64	.06	-.26	-.30	.03
CPI (% of base)	.24	.60	.57	.40	.38	.46
Unemployment rate (per cent)	-.26	-.28	-.04	.14	.20	.03
Aggregate government balance ($ million)	-731	-742	-547	-1096	-987	-455

TABLE A4
Experiment 1-A: Temporary Expenditure - 'Money-Financed'

Change in:	1983	1984	1985	1986	1987	1990
Real GNP (millions of 1971$)	862	1341	942	460	-49	-653
% of base	.67	.99	.67	.31	-.03	-.39
CPI (% of base)	.34	.96	1.29	1.27	1.19	.42
Unemployment rate (per cent)	-.27	-.37	-.23	-.05	.12	.30
Aggregate government balance ($ million)	-525	177	1161	478	-204	-1177

assuming that approximately half the economy-wide average real wage would be paid.

Experiment 2: capital cost indexing

At present, capital cost allowances (CCAs) for tax purposes are not adjusted for the effects of inflation on the replacement costs of capital goods. In principle, capital cost allowances could be adjusted to reflect inflation, thereby giving an on-going tax benefit to corporations. Experiments 2 and 2-A implement a scheme of full indexation of CCAs, in which terms reflecting the indexation enter into both the 'user cost' variables - and so into investment - and corporate tax collections. (For further details, see the FOCUS model documentation.) The indexing feature is assumed to apply only to capital goods purchased after the scheme is put into effect; in this way it can generate new investment at little cost in near-term tax revenue.

Experiment 3: restoration of the unemployment insurance 'automatic stabilizer'

At present, the rate of contribution to the Unemployment Insurance system is adjusted at the beginning of each year in light of the fund's performance in the previous year and expectations for its performance in the year to come. Thus, the rate was slightly reduced in 1982 after the 'surplus' year of 1981, while it was increased by about 40 per cent in the wake of the fund's 1982 deficit. Increasing UI premiums on this basis is, of course, equivalent to increasing taxes during a recession. On the other hand, the current legislation requires the contribution rate to be cut as the unemployment rate falls, an arrangement that could fuel a boom.

In the FOCUS model, the mechanism for adjusting the contribution rate is only approximate. It is as follows:

$$\text{New rate} = \text{Old rate} * \alpha * \frac{\text{Payments}}{\text{Receipts}} \text{ in previous year.}$$

In practice, a value for α of 1.0 seems to best approximate the past adjustments of this rate. Under this formula, a year of zero net deficit in the fund will leave the rate unchanged. An excess of payments over receipts will, of course, raise the rate.

For the experiment making the UI system more of an automatic stabilizer again, the value of α was changed to .2 (from 1.0), starting with the

TABLE A5
Experiment 2: CCA indexing ('mark-up' price)

Change in:	1983	1984	1985	1986	1987	1990
Real GNP (millions of 1971$)	393	1321	1637	1434	1088	836
% of base	(.30)	(.98)	(1.2)	(.97)	(.71)	(.49)
CPI (% of base)	.05	.45	1.1	1.3	1.6	2.9
Unemployment rate (per cent)	-.06	-.31	-.52	-.55	-.46	-.41
Aggregate government balance ($ million)	360	1417	1653	408	-534	-2324

TABLE A6
Experiment 2-A: CCA indexing (market-clearing price)

Change in:	1983	1984	1985	1986	1987	1990
Real GNP (millions of 1971$)	368	1193	1698	1790	1437	1959
% of base	(.28)	(.88)	(1.2)	(1.2)	(.94)	(1.2)
CPI (% of base)	.11	.71	1.2	.94	.34	1.4
Unemployment rate (per cent)	-.07	-.33	-.54	-.51	-.29	-.33
Aggregate government balance ($ million)	424	1645	1571	-306	-2371	923

1983 adjustment. As a result, the rate rises less in 1983 and 1984, but falls less in subsequent years when unemployment improves, thus 'damping' the downturn-upturn fluctuation of the 1980s.

TABLE A7
Experiment 2-B: CCA Indexing (market-clearing price with exchange rate held at base by monetary policy)

Change in:	1983	1984	1985	1986	1987	1990
Real GNP (millions of 1971$)	212	481	454	687	881	899
% of base	(.16)	(.36)	(.32)	(.47)	(.58)	(.54)
CPI (% of base)	.05	0.0	-.26	-.25	-.30	-.39
Unemployment rate (per cent)	-.04	-.11	-.07	-.11	-.18	-.19
Aggregate government balance ($ million)	230	21	-898	-460	-761	-2976

TABLE A8
Experiment 3: 'Damped' UI contribution adjustment

Change in:	1983	1984	1985	1986	1987	1990
Real GNP (millions of 1971$)	345	1254	1621	1080	190	-562
% of base	(.27)	(.93)	(1.1)	(.73)	(.12)	(-.33)
CPI (% of base)	.06	.12	.19	.28	.46	1.1
Unemployment rate (per cent)	-.13	-.44	-.56	-.37	-.04	.27
Aggregate government balance ($ million)	-1068	-2583	-1980	-1486	-893	39

APPENDIX B
LOWER-INFLATION ALTERNATIVE

At present, projections of inflation for the 1980s vary widely. The projection presented above, in which both U.S. and Canadian inflation average about 6 per cent over 1984-90, may be unduly pessimistic in light of current information and a continuing large output gap. The 6 per cent rate could still apply, given at least one major supply shock during the decade (of course, this would lead to a much less regular pattern of inflation than in the projection) and continued 'catch-up' wage and price

TABLE B1
Impact of reduced inflation

Change in:	1984	1985	1986	1987	1988	1989	1990
Inflation rate (percent) (CPI)	-.25	-.5	-.75	-1.0	-1.25	-1.5	-1.75
Federal deficit ($ billions)	-.040	-.109	-.354	-.868	-1.462	-2.129	-2.930
Aggregate deficit ($ billions)	-.068	-.112	-.372	-1.091	-1.955	-2.923	-4.055
Federal deficit adjusted for inflation ($ billions)	.343	.783	1.168	1.415	1.705	2.027	2.342
Federal deficit as percentage of GNP	.10	.31	.61	.95	1.31	1.68	2.08

pressure left over from the 'great recession' and 'six and five.' But inflation could also be lower, with perhaps the most likely scenario being a gradual reduction below our base-case 6 per cent rate as the decade progresses. This appendix briefly examines the implications of a lower inflation rate for the deficit.

The alternative projection differs from the base case in that the inflation rate, both in the U.S. and Canada, is reduced by 1/4 of a percentage point each year starting in 1984; thus the 1990 inflation rate is about 4 per cent. Interest rates are reduced correspondingly, so as to keep real rates at base-case levels, and the same real changes in world oil prices are maintained; but the real components of GNP are fixed at base-case levels - i.e., they in no way respond to the reduced inflation. By holding real expenditure components at base levels, we are more easily able to isolate the impact on the deficit of lower inflation alone. Of course, reduced inflationary pressures could open more room in which to manoeuvre between the twin goals of stimulating the economy and keeping inflation low. More robust growth would itself have implications for the deficit.

As can be seen from Table B1, the results of reduced inflation are mixed. In purely nominal terms, the sizes of both the federal and aggregate deficits are reduced by lower inflation. By 1990, this improvement is by about $3 billion for the federal government and about $4 billion in aggregate. However, the inflation-adjusted federal deficit increases by a little over $2 billion by 1990 under a lower inflation scenario. (This result, combined with the figures in Table B1 yields a total inflation-adjusted federal deficit of about $3.5 billion in 1990.) As a percentage of GNP, the projected federal deficit also rises under reduced inflation; nominal GNP declines slightly more than the deficit. The extent of the deficit increase is about 2 percentage points; nevertheless, as in the base case, the ratio of debt to GNP still peaks in 1988.

This alternative indicates that while the tax and expenditure system is by no means fully inflation-proof, assuming a different and lower inflation rate does not alter the basic lessons of the projection described in the text. It is instructive how the unadjusted and inflation-adjusted deficits move in opposite directions in this alternative, underscoring the importance of taking the inflation adjustment into account.

NOTES

1 This projection was developed using the FOCUS model maintained by the Institute for Policy Analysis, University of Toronto.

2 For details of the base-case simulation and the policy alternatives, see Appendix A.

3 FOCUS is described in detail in Institute for Policy Analysis (1982) Focus-User's Manual.

4 This is apparent from a review of the longer-term comparative simulation results from several Canadian models published by the Bank of Canada and the Department of Finance (1982).

5 The DRI simulation, TRENDLONG 1282, is described in detail in Data Resources Inc. (1982) U.S. Long-Term Review.

6 The recent OPEC price adjustment represents a 15 per cent decline in world oil prices this year.

7 This refers to the wellhead price of 'old' conventional oil. The blended price paid by buyers will of course be somewhat higher.

8 Clearly, the Canadian inflation rate can deviate from the U.S. inflation rate in the shorter run. However, we assume that the Canadian and U.S. inflation paths will roughly track together over the longer run, as they have in the past.

9 The term used for federal debt in FOCUS is only an approximation, designed to be easily constructed from other model variables. In essence, it is simply the accumulation of past federal deficits (surpluses reduce debt) net of any monetization of the debt. That is, bond holdings of the Bank of Canada are not included.

10 For further detail see Appendix A. Increases in government expenditures to mitigate the recession have recently been analyzed by DRI and Informetrica.

11 For a more permanent policy change, the central bank may not be able to control short-term interest rates without serious problems of instability.

12 The debt/GNP patterns generated by the three experiments differ significantly over the medium term. This circumstance mainly reflects the differing impact of the stimulus on the aggregate price level under the different price and exchange rate regimes.

Leo de Bever*

Given the limited time, it does not seem fruitful to comment on details of the simulations performed by Dungan and Wilson. I want to focus instead on the key issues.

- Is the base case outlook plausible?
- Do we like what it tells us about the future?
- Are we focusing on the right problem (i.e., the deficit)?
- Is the deficit as harmless as it is made out to be in the adjustments carried out by the authors?

We at Chase Econometrics are in rough agreement with the long-term scenario under discussion, although we are somewhat more pessimistic about growth prospects (about 3 per cent as opposed to 3.7 per cent). We are forced to the conclusion that 6 per cent inflation is about the best one can reasonably expect over the next decade, on average. We arrive at equally pessimistic labour productivity estimates, but see the federal deficit ending up somewhat lower at $8-10 billion by 1990, probably because we built in a fiscal response to continuing deficits on the tax side.

The main thing that disturbs me in all of this is that for the period 1970-90, there are very few years in which the federal government is in surplus, even after adjusting for inflation. Without wishing to comment on the appropriateness of the specific adjustments made, I find the implicit debt position very disturbing. The authors mention that we saw a debt/

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GNP ratio of 50 per cent in the 1950s, but if I remember correctly, this was because of a war. To many of us 1982 may have been a war, but the situations are not really comparable.

I basically agree that a $30 billion deficit in 1983 is unavoidable, and a quick reduction difficult to achieve, and probably undesirable. I am not particularly against short-term relief for the unemployed, although I would like to see some strings attached. There is again talk of stimulating construction, one of the sectors characterized by high wage levels and high unemployment rates. In sectors where markets are obviously not in balance, we should insist on some self-help in the form of reduced wage levels.

The results of the alternative policy scenarios clearly indicate something that disturbs me about a lot of proposals for stimulus: they buy temporary, short-term gains in output, at the cost of a long-term increase in the price level. The only exception to this is the proposal for indexation of capital cost allowances.

Our own work has indicated that fiscal stimulus has to operate on the productivity nexus to have lasting positive effects on prices, deficits, and debt levels. We are not convinced that massive government expenditure is required. The main task at hand may be to provide a stable environment in which human and fixed capital formation will be undertaken. If we are to get ready for the competitive environment of the eighties, as Mr. Lalonde urged us to do, both of these forms of investment are essential. Therefore, we deplore recent proposals to further cut education expenditures. On the fixed capital formation side, fiscal policy seems to have made the worst of a bad situation over the last few years: to the adversity caused by monetary upheavals, we have added confusion (and expectations of future confusion) in taxation policy. This is in part responsible for a replacement of inflationary expectations with expectations of low growth, which may be just as hard to eradicate. Stability in fiscal policy would go a long way towards correcting this problem, and avoiding a future of low growth, high unemployment, and high deficits. In closing, I was struck by a comment the authors made about Canadian performance being tied to U.S. performance. Without ignoring obvious linkages, it strikes me that there is no reason why we could not set our aims somewhat higher, as Lester Thurow recently suggested. The U.S. projections underlying the Dungan-Wilson study do not portray a future that is particularly worth emulating, and I suggest that there is no reason to be satisfied when we do no worse than the U.S.

What can macroeconomic theory tell us about the way deficits should be measured?

Michael Parkin*

INTRODUCTION

Deficits in the federal government accounts of $30 billion - approximately 10 per cent of GDP - have generated two diametrically opposed reactions. Both are reactions of alarm, but the perceived sources of that alarm stand in direct conflict with each other.

Perhaps the most common reaction, certainly the most common one among non-economists, is that of seeing the deficit as being too big, of seeing it the source of high real interest rates and (until recently) stubborn (possibly to be subsequently renewed) inflation. High interest rates, in turn, are held responsible for low levels of expenditure on capital equipment and household durable goods, and low levels of expenditure are identified as the source of high unemployment. Thus, according to this view - a view rarely found in academic writings but common in less formal or journalistic discussion - the deficit is too big, and as a consequence interest rates, inflation, and unemployment are all too high.

The second reaction, which comes mainly from economists, reaches exactly the opposite conclusion. Using traditional concepts of opportunity cost and the newer (though by no means new) ideas of post-Keynesian macroeconomic theory, economists suggest that the conventionally calculated deficit requires adjustment for (at least) three clearly identifiable factors that are mistreated in the financial accounting procedures employed by national income and public sector accountants. One of these factors would make the deficit, as correctly measured, larger than the accounting measure makes it, but the other two factors would make the deficit smaller.

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It is the government sector accounts treatment of pension operations that makes the conventionally measured deficit smaller than the correctly calculated one. This result arises from the fact that the financial accounts treat the pension funds on a cash-receipts rather than an accruals basis. In the early stages of a pension program, such as the Canada Pension Plan, cash receipts from the large number of working contributors substantially exceed the cash payments to those already retired and eligible for a pension. However, the government incurs a liability to existing contributors, just as it incurs a liability when it sells a bond. At present there is a surplus in the cash flow of the Canada Pension Plan in excess of $1 billion annually. In the absence of changes in either benefit rates or contributions (or subsidies from general taxation), this surplus will become a substantial (and increasing) deficit as the plan reaches maturity and the stock of eligible pension recipients increases. Thus the cash flow approach understates the true deficit, compared with what would be revealed by an accruals approach. Economists have suggested that the best way of handling government pension plans is to remove them completely from the government sector accounts, making it possible to measure the deficit net of any surplus contributed by the pension plan.

The factors that economists believe misleadingly swell the deficit are inflation and unemployment. In part, the high market rates of interest that the government is currently paying on its debt merely reflect compensation to bond holders for the falling value of money. This 'inflation component' of interest payments on the government's debt should be eliminated from calculations of the deficit. Furthermore, the real value of the government's monetary - non-interest bearing liability - is falling at the rate of inflation, and this factor too should be allowed for. In terms of opportunity cost (as opposed to financial) accounting, there can be no question that these adjustments to the financial accounts are required in order to establish the current real resource transfers that are taking place between the government and private sectors.

The rationale for adjusting the deficit to take unemployment into account derives not from opportunity cost considerations but from Keynesian macroeconomic theory. Central to Keynesian economics is the proposition that high unemployment and low real income result from insufficient aggregate demand. If aggregate demand were at an adequate level, there would be 'full employment.' High unemployment and low income swell the government deficit by inducing extra unemployment compensation payments and lowering tax receipts. These induced components of the deficit are transitory and will disappear when the economy returns to its full-employment state. They should not, therefore, be counted as part of the 'core' (or 'chronic') deficit.

Allowing for all these factors results in the transformation of what at first appears to be an alarming deficit into an equally alarming surplus. According to the calculations of Bossons and Dungan (1983, 1), 'if the economy were at full employment and the government surplus or deficit were correctly measured, the current taxation and expenditure programs of all governments combined would yield a surplus of approximately $6 billion.' This 'discovery' of a surplus has led these and perhaps a majority of economists to conclude that 'as a result, the current fiscal position of Canadian governments is depressing rather than stimulating the Canadian economy.' (Bossons and Dungan 1983, 1.) That is, far from the big deficit being the source of high interest rates, inflation, and unemployment, it is the big adjusted surplus that is responsible for these problems.

Which view is correct? What do economic theory in general and macroeconomic theory in particular tell us about the way in which deficits should be measured? These are the questions to be addressed here. The first section following this introduction reviews the alternative ways in which the conventional accounting deficit may be adjusted to arrive at a variety of alternatively defined deficits (one of which will be the 'full-employment' real deficit/surplus) conventionally calculated by economists. I shall then pose the question: Which of these alternatives (if any) is the right one? The answer to this question will be of the 'it-depends-on' variety. In this case, it depends on which of various questions concerning macroeconomic performance we wish to address, and also on which model of economic behaviour best describes the world in which we live.

The subsequent four sections of the paper identify and address four questions of substance concerning macroeconomic performance. These questions concern the influence of the deficit on aggregate demand, the real rate of interest, the levels of output and unemployment, and inflation. In addressing these questions, I shall use a theoretical framework that is sufficiently general to permit an examination of the consequences for the way in which deficits should be measured of alternative views about macroeconomic behaviour. The final section of the paper provides a brief summary of the main conclusions.

The main conclusion reached is worth anticipating here. It is that macroeconomic theory is much less clear-cut in its implications for how the deficit should be measured than most economists seem ready to believe. However, to the extent that macroeconomic theory does offer guidance, it suggests that we face a potentially serious problem arising from an evolving deficit that has been too big, is too big, and promises to remain too big. I offer no calculations in this paper, so I am not able to say how large a problem we face. However, the rosy picture painted by the real full-employment deficit calculations is clearly misleading and probably seriously so.

I also offer no policy prescription. (This may be inferred as implying a preference for a neutral policy stance under current circumstances.) My only prescription is for more research. We need to know more not only about macroeconomic behaviour, but also about the political processes whereby fiscal policy and the resulting deficit are generated. I suspect that until we have a better knowledge of these matters we shall not make any serious progress in improving the performance of fiscal policy. We shall be able to inject additional (unwanted) noise, but we shall not have the capacity to change the underlying structural process.

FINANCIAL AND ECONOMIC MEASURES OF THE DEFICIT

There are two readily available bases for measuring government economic activity. They are the National Accounts basis and the Public Accounts basis. The National Accounts basis is more comprehensive than the Public Accounts basis. The two bases differ substantially in their measure of total revenues and total expenditures; the difference between their assessments of the deficit is much smaller. In what follows I shall (implicitly) regard the National Accounts measures of government activity as the appropriate ones.

A starting point for discussing the deficit is the government's receipts and payments in current dollars. Purchases of goods and services, transfer payments, the payment of interest on outstanding bonds, and the redemption of bonds all have to be financed by tax revenues, the sale of new bonds, and the creation of new money balances. This necessary equality between outlays and receipts may be expressed as follows:

$$G_t - V_t + \frac{R_t}{(1+R_t)} B_t - (B_t - B_{t-1}) - (M_t - M_{t-1}) = 0, \qquad (1)$$

where G_t is nominal government spending on goods and services,
V_t is nominal tax receipts net of transfer payments,
R_t is the nominal rate of interest,
B_{t-1} is the value of bonds redeemed at t,
B_t is the value of bonds to be redeemed at t+1,
M_{t-1} is the nominal money supply outstanding at the end of the previous period, and
M_t is the nominal money supply outstanding at the end of the current period.

The first two terms in equation (1) are self-explanatory. The other terms require some elaboration. To keep things simple, I am supposing that the government issues only one-year bonds.[1] Because of this assumption, the amount paid out in the current period to redeem old bonds is the entire outstanding stock, B_{t-1}. The analytically convenient fiction used is that in the previous year the government sold commitments to pay out B_{t-1} one year hence. In the current year the government has sold a commitment to pay out B_t one year hence. The price for which the government has sold such a promise is $1/(1+R_t)$ - the price of a one-period bond in the current period. Thus, $R_tB_t/(1+R_t)$ represents the implicit interest payments on the current year's bonds.[2] The final two terms in the above equation capture the contribution to the government's budget of newly created money. This is to be thought of as the liability of only the central bank (Bank of Canada) and not of the chartered banks as well. In other words, equation (1) consolidates the Bank of Canada and the government. Government bond transactions with the Bank of Canada are not included in B.

Care is required to interpret equation (1) correctly for an open economy. In an open economy, the money supply has to be redefined as the equivalent of the stock of domestic securities held by the central bank (domestic credit) and not as the total high-powered money stock. Under a cleanly floating exchange rate regime where the stock of foreign exchange reserves were either zero or constant, the change in domestic credit (domestic credit expansion or DCE) would, of course, be equal to the change in the nominal stock of high-power money (M_t-M_{t-1}).[3]

Although equation (1) describes government receipts and outlays on a cash basis, a suitable redefinition of the equation's terms would allow us to describe government income and expenditure on an accruals basis instead.

An accruals-base definition of income and expenditure differs from a cash-receipts definition in exactly the same way that an accountant's profit-and-loss account differs from his cash account. It reflects changes in liabilities even if those liabilities are not represented by an explicit contractual transaction. As was noted in the introduction, one aspect of government activity - its involvement in pension plans - makes it important to recognize the distinction between cash receipts and accruals for the purpose of calculating the government's budget position. When the budget is calculated on a cash-accounts basis, the government's pension activities appear in the term V in equation (1). V will include all of the payments made to existing pension recipients minus the amounts received from existing contributors. When the government's budget is calculated on the more appropriate accruals basis, these contributions are subtracted from V and added to the current-period receipts from the sale of bonds. Although the government does not actually sell an explicit bond to a member of its pension plan, it may nevertheless be thought of as selling an implicit bond. It is not enough to simply remove the net cash flow arising from pension plan operations from V. A further reduction in V (with a consequential increase in the value of implicit bonds outstanding) has to be made to allow for any true (accruals base) deficit in the pension program. With this discussion in mind we may now reinterpret equation (1) as an accruals equation.

Converting from a cash-flow to an accruals basis does not affect purchases of goods and services or the creation of money (the first and last two items in the equation). It does, however, involve juggling items between taxes net of transfers and bonds outstanding. A correct calculation, one that allowed for the actual features of existing pension plan arrangements, would lower V and increase both the level of and growth rate in the stock of bonds outstanding to include the implicit bonds that, like actual bonds, represent claims on the government's future resources. Respecting this accruals-base reinterpretation of equation (1), care has to be taken to note that neither V nor the conventionally reported bond-market data represent the accruals measures which are the appropriate ones.

The next adjustment to be made to the government accounts involves deflating to allow for the effects of inflation. Instead of being considered in current dollars, the government's account may be considered in constant dollars by dividing each item in the above equation by the general price level (the GDP deflator). Denoting the real values of variables (nominal values divided by the GDP deflator) by the corresponding lower case letter and defining $1 + r_t \equiv (1+R_t)/(1+\pi_t)$, where π is the rate of inflation, gives[4]

$$g_t - v_t + \frac{r_t}{1+r_t} b_t - (b_t - b_{t-1}) - (m_t - m_{t-1}) - \pi_t m_t = 0. \tag{2}$$

The first two terms in (2) are real government expenditure on goods and services and real tax receipts (net of transfers), respectively. The third term is best interpreted in two parts: r_t is the real interest rate, and $b_t/(1+r_t)$ is the current real value of the stock of outstanding bonds. The next two composite terms represent the growth in the stock of real bonds $(b_t - b_{t-1})$ and of real money balances $(m_t - m_{t-1})$. The final term represents the inflation tax - the real revenue accruing to the government as a result of the decline in the outstanding real stock of its monetary liabilities.

Various alternative definitions of the government's deficit may now be obtained by, in effect, simply rearranging equation (2). The first and narrowest definition of the deficit is

$$d_{1t} \equiv g_t - v_t. \tag{3a}$$

This is the real deficit exclusive of debt interest. It is the magnitude focused on in several papers, notably those by McCallum (1982) and by Sargent and Wallace (1981a). It is equivalent, of course, to

$$d_{1t} = (b_t - b_{t-1} + m_t - m_{t-1}) + \pi_t m_t - \frac{r_t}{1+r_t} b_t. \tag{3b}$$

What equation (3b) says is that the deficit (excluding debt interest) has to be financed by the growth in the stock of real bonds and real money balances outstanding (the first term in the equation), and by the inflation tax (the second term in the equation). The final term in equation (3b), is simply the interest payments on the existing stock of debt that have to be subtracted from the growth of liabilities and inflation tax.

A second fairly natural definition of the deficit is one that includes real interest on the real debt outstanding. That is,

$$d_{2t} \equiv g_t - v_t + \frac{r_t}{1+r_t} b_t. \tag{4a}$$

This, of course, is equivalent to

$$d_{2t} = (b_t - b_{t-1} + m_t - m_{t-1}) + \pi_t m_t. \tag{4b}$$

What this says is that the deficit inclusive of real interest payments has to be covered by the inflation tax and the growth in the real value of the government's bond and money liabilities.

A third definition recognizes that the government's real monetary liabilities are falling as a result of inflation and subtracts that fall in the real value of money from the above deficit to give

$$d_{3t} \equiv g_t - v_t + \frac{r_t}{1+r_t} b_t - \pi_t m_t. \tag{5a}$$

This, of course, is equivalent to

$$d_{3t} = b_t - b_{t-1} + m_t - m_{t-1}. \tag{5b}$$

Thus, this definition of the deficit amounts to simply the change in the real value of the government liabilities between t-1 and t.

A further definition is suggested by the famous Ricardian equivalence proposition. If government bonds are perceived to generate a future tax liability with the same present value as the market value of the bonds, then the above discussion concerning the distinction between a cash-receipts and accruals definition of the government's account is seriously incomplete. While a bond sale does represent a cash receipt, it does not, under the conditions of Ricardian equivalence, generate a revenue on an accrual basis. A definition of the deficit that takes this distinction into account is

$$d_{4t} \equiv g_t - v_t + \frac{r_t}{1+r_t} b_t - \pi_t m_t - b_t + b_{t-1} \tag{6a}$$

or, equivalently,

$$d_{4t} = m_t - m_{t-1}. \tag{6b}$$

What this says is that if bonds and future tax liabilities are equivalent to each other, then bonds are not part of private sector wealth and any change in the stock of bonds outstanding represents a change in neither private sector wealth nor government liability. It is only the change in real money balances (equation (6b)) that represents a change in private sector wealth.

Each of the above alternative definitions of the deficit takes opportunity cost notions into account. These definitions do not, however, pay any attention to the macroeconomic arguments concerning the need for cyclical adjustment of the deficit. A cyclically adjusted deficit ('full-employment' deficit) could be defined for each of the four alternative deficit definitions presented above. It is simplest, however, to examine the full-employment version of the deficit in connection with the d_1 definition.

The basic idea behind the full-employment adjustment is that government expenditures and tax receipts ($g_t - v_t$ or, equivalently, d_{1t}) will reflect both the programs and tax regulations in place as well as the current state of the economy. We could represent this idea as

$$d_{1t} = d_{ot} + \alpha_t y_t. \qquad (7)$$

Here d_{ot} denotes the level of the deficit that is independent of the current state of the economy; y_t represents the state of the economy at the current moment in time; α_t reflects the effects of the existing tax and spending regulations on the way in which the current state of the economy influences the deficit. In principle, α and y are vectors of high dimensionality. It is convenient, however, to regard y as simply real GDP and α as the effects of real GDP on the deficit. Using this simplification, we could define the full-employment deficit as the deficit that occurs when income is at its full-employment level. Calling y_t^* full-employment real income at time t, the full-employment deficit then becomes

$$d_{1t}^* = d_{1t} + \alpha_t(y_t^* - y_t). \qquad (8)$$

What this equation tells us is that the deficit is equal to its full-employment counterpart plus an adjustment for the deviation of income from full employment. Each of the other definitions of the deficit have a full-employment equivalent that involves precisely the same adjustment - the subtraction of $\alpha_t(y_t^* - y_t)$ from the definition given above.

Thus, we now have eight alternative definitions of the deficit (actual and cyclically adjusted) for four definitions of varying breadth. Which, if any, of these deficit measures are interesting from a macroeconomic perspective? The answer to this question clearly depends on the underlying question of substance regarding macroeconomic performance that one seeks to address. Some possible questions of substance are:

1. Is the deficit stimulating or retarding aggregate demand?
2. Is the deficit raising real interest rates?
3. Is the deficit raising or lowering output and employment (relative to some 'full-employment' levels)?
4. Is the deficit inflationary?

Note that questions (1) and (3) are not the same: aggregate demand may or may not be equivalent to actual output.

None of these questions can be answered solely by reference to the government accounts (somehow arranged). All need to be addressed through analysis of the behaviour of both the private sector and the government. In the pursuit of such analyses, some definitions of the deficit will turn out to be useful; some will not. To see this, however, it is necessary to address the specific questions posed above.

THE DEFICIT AND AGGREGATE DEMAND

Is fiscal policy, as reflected in the deficit, stimulating or retarding aggregate demand? This is a question of interest to Keynesians and non-Keynesians alike. The Keynesian interest stems from the direct link between aggregate demand and actual output and employment (as well as unemployment) in the simplest Keynesian frameworks. The non-Keynesian is interested in the question because of the potential effects of aggregate demand on both real income and the price level (or, more generally, the inflation rate).

Most economists would agree that any analysis of the effects of the deficit on aggregate demand must start from a theory of aggregate demand. A widely accepted general proposition is that aggregate demand increases with the quantity of real money balances, the stock of real government bonds outstanding, the expected rate of inflation, and the level of government purchases of goods and services. Note that the level of government expenditure, as well as the deficit and the way in which it is financed, is crucial to the level of aggregate demand. The composition of public expenditure is also of vital importance. The implications for aggregate demand of expenditure on profitable (revenue creating) activities are clearly different from those of pure waste. For present purposes, however, I shall treat both the level and the composition of public expenditure as given. I shall also ignore considerations such as time lags and foreign influences on demand.

For a given expected rate of inflation and a given level of government expenditures on goods and services, aggregate demand will change with changes in real money balances and the real stock of government bonds outstanding. There is no disagreement concerning the role of real balances. However, Ricardian economists would hypothesize that the effects of government bonds on aggregate demand are unimportant because of the offsetting change in future tax liabilities, and most economists would agree that bonds have less effect on aggregate demand than do real money balances.

If the level of aggregate demand depends upon the levels of real money and real bond holdings, then which of the alternative deficit definitions are needed in order to understand the effects of the deficit on aggregate demand? The answer is immediate and direct. It is a combination of definitions d_3 and d_4, given above. If the economy really is Ricardian, then d_4 is the appropriate definition. If bonds and money have equally important effects on aggregate demand (an extreme position to which hardly anyone would subscribe), then definition d_3 is appropriate. In general, a weighted average of d_3 and d_4 is required; the weighting will reflect the degree to which bonds constitute net worth.

It is worth emphasizing that it is the deficit as measured by a combination of d_3 and d_4 on an accruals rather than a cash-receipts basis that is appropriate. Changes in individuals' perceived wealth through their participation in public sector pension schemes are just as important as any other perceived wealth changes. Of course, if the world is Ricardian, then this consideration loses its force.

We have seen, then, that definitions of the deficit d_3 and d_4 are the appropriate ones for telling us about the effects of the deficit on changes in aggregate demand. However, changes in real money balances and real bonds outstanding are induced in part by changes in the current level of real income. This suggests the need for a measure of deficit that is independent of the actual level of income. The full-employment version of deficits d_3 and d_4 are, therefore, suggested as the appropriate ones. Which particular level of employment is selected as the full-employment level is a matter of secondary importance. All that is needed is a constant level of real income, so that the effects of changes in income on induced changes in the growth rates of real money and real bonds outstanding are removed.

It is important to note that the level of the deficit yielded by this calculation tells little in and of itself. It is the changes in the deficit yielded by this calculation that provide information about the direction and magnitude of the effects of fiscal policy on the growth rate of aggregate demand.

It is noteworthy that the measure of the deficit required to indicate the effects of the deficit on aggregate demand, the full-employment version of either d_3 or d_4, is very close to the adjusted deficit calculated by Bossons and Dungan (1983). There are, however, two features of their work that make their calculations and inferences slightly different from those reached above. First, their calculations of the deficit ignore the government's pension activities - which means, of course, that they fail to convert the pension program from a cash-receipts base to an accruals base. The second difference has to do with levels versus changes in levels. It was remarked above that it is changes in the full-employment deficit (d_3, d_4 definition) that provide information about changes in the growth rate of aggregate demand induced by active fiscal policy. Bossons and Dungan seek to draw inferences about aggregate demand from the level of the full-employment surplus. Of course, to say that a change in the deficit (appropriately defined) induces a change in the growth rate of aggregate demand is equivalent to saying that the level of the deficit induces a change in the level of aggregate demand. There is, however, a crucial difference between these two propositions, at least as empirically implemented by Bossons and Dungan. In order to make statements about the effects of a change in the deficit on the change in the growth rate of aggregate demand, one does not need to be sure that one is using the correct level of unemployment in calculating the full-employment deficit. In order to make statements about changes in the level of aggregate demand on the basis of statements about the level of the deficit, one does need to know that the full-employment level used in the calculated adjustments is the correct one.

Those who advocate fiscal stimulation in current conditions assume that any rise in aggregate demand would have a sufficiently large output effect and a sufficiently small price effect for such stimulation to be worthwhile. The possible effects of the increased deficit (or decreased surplus) on the price level and on aggregate supply are either ignored or downplayed. I shall return to this issue later in the paper.

THE DEFICIT AND REAL INTEREST RATES

There are certain situations (some actual and some hypothetical) in which the real rate of interest is a parameter and not subject to any influence from either the government's fiscal policy or any other domestic source. Such a situation occurs, for example, when a small, open economy faces effectively perfectly elastic supplies of capital from the world capital market. Canada, in current conditions, probably fairly well approximates such an economy. Another situation of this type is one in which bonds are not treated by their holders as part of net wealth - when they are perfect substitutes for future tax liabilities. A third situation is where there is a constant rate of time preference that bolts down the equilibrium real rate of interest (in stationary equilibrium) and forces adjustments of the capital stock to ensure that the marginal product of capital equals that parametrically given rate of time preference. In all these cases, it is evident that, regardless of how it is defined and measured, the deficit has no effect on the real rate of interest.

In other situations, when the rate of interest is an endogenous variable responding to current domestic economic conditions, it is of some importance to enquire how it is affected by the deficit (on some appropriate definition). Although this question may be of limited practical importance for Canada, it is clearly of importance for the world economy as a whole and for large economies such as the United States.

A moment's reflection will show that the question is almost the same as the question of the deficit's influence on aggregate demand, for the level of aggregate demand and the level of the real rate of interest are determined simultaneously by goods market and money market equilibrium. Except in the special cases noted above, and ruling out perverse cases, the standard reduced form predictions arising from a variety of alternative structures would have the real rate of interest fall as the quantity of real money balances increased and rise as the stock of real bonds increased.

If we suppose that we are dealing with a situation in which the expected (and actual) rate of inflation is constant, so that real balances are also constant, the only remaining influence (stemming from fiscal policy) on the real rate of interest is the size of the real stock of government bonds outstanding. If that stock is rising (in per capita terms), then, except in the special cases that we are not considering here, the real rate of interest will also rise. Such a rise in the real rate of interest will induce intertemporal substitution in consumption of both goods and leisure. It will also induce a smaller equilibrium capital stock and, temporarily, a slower rate of accumulation.

Which is the appropriate measure of the deficit for judging the influence of fiscal policy on the real interest rate? The answer appears to be definition d_3. Given a constant inflation rate and real balances constant in equilibrium, that measure of the deficit would be a direct measure of the increase in the stock of real government bonds outstanding. If we are interested in removing any effects stemming from changes in real bonds outstanding induced by the state of the economy, it will be the full-employment version of d_3 that provides an indication of the qualitative effects of the deficit on the real rate of interest.

The importance of these considerations for Canada taken alone is probably negligible. (See Ronald Wirick's paper later in this volume.)

THE DEFICIT AND THE LEVEL OF REAL ECONOMIC ACTIVITY

The level of real economic activity may be viewed as being determined by the interaction of aggregate supply and aggregate demand. Even the most eclectic introductory textbooks in economics now adopt this approach. (See, for example, Lipsey, et al. (1982).) In this view, if aggregate demand and aggregate supply both rise, but aggregate demand rises more, then income will rise and the price level will rise. If both rise, but supply rises by more than demand, then income will fall in the face of rising prices - stagflation. If both aggregate demand and aggregate supply fall, but demand falls by less than supply, then income will rise but the price level will fall. Finally, if both fall, but if aggregate demand falls by more than aggregate supply, then both income and the price level will fall. Therefore, to determine the effects of the deficit on the level of real economic activity, it is necessary to examine its effects on both aggregate supply and aggregate demand. I have already discussed its effects on aggregate demand. I shall now focus on aggregate supply.

The most general approach to an analysis of aggregate supply is to suppose that the amount that will be supplied at any given point in time depends on the price level prevailing at that point relative to the expectations of the price level formed at various dates in the past. In a special case - the so-called New Classical version of the theory of aggregate supply - it is only the most recently formed expectation of the current price level that matters.[5] In the alternative so-called New Keynesian or long-term contract approach, what matters are the expectations of the current price level that were formed on the dates when all the labour market (and other input market) contracts still in force at the present time were entered into.[6] To the extent that current changes in aggregate demand were anticipated on those past dates, such changes will have no effects upon real economic activity and will have all their effects on the price level. However, to the extent that such changes in aggregate demand were not anticipated, they will have real effects. Thus, the crucial thing for output determination is not the level of aggregate demand, but rather its level relative to the anticipated level (where the anticipations in general have been formed at various dates in the past). It immediately follows that it is not the level of the deficit that is important for the determination of the level of real economic activity, but rather the predictability of the deficit. If the deficit is currently at a level that was anticipated in the past, then its effects will come through aggregate demand to influence the price level but not the level of output and employment. Therefore, regardless of how one measures the deficit, it is not possible, by simply examining the deficit and its effects upon the level of aggregate demand, to reach any conclusions concerning the effects of the deficit on the levels of employment and unemployment.

These considerations have important implications for the policy advice that is often given concerning the deficit. Those economists who regard the current state of the deficit as being contractionary and who therefore advocate fiscal stimulus need to ask how it will be possible to generate fiscal stimulus that will not have been reasonably well anticipated by the time it actually occurs. In view of the lags between decision, legislation, and implementation associated with fiscal policy, it is hard to believe that much of what happens on the fiscal policy front can be regarded as unanticipated.

The implication of the above remarks is that no particular measure of the deficit has any major role to play in indicating what determines the level of economic activity. It is only the current level of the deficit relative to its previously expected (cyclically adjusted) level that is of concern.

There is, of course, an alternative view, which holds that the price level (and inflation rate) are largely (though not entirely) independent of aggregate demand. If this is the case, variations in aggregate demand will indeed be associated with variations in actual output and employment. Econometric models can be built that both fit the facts and incorporate this view of the world. It may, therefore, justifiably be asked how I can spend so much time on the present topic and yet say nothing about this alternative (Keynesian) approach. This is not a suitable place to engage in a lengthy appraisal of the Keynesian tradition. Nevertheless, there do seem to be cogent reasons for doubting the ability of the alternative approach to offer more than a description - rather than an understanding and an explanation - of the facts.[7]

THE DEFICIT AND INFLATION

'Is the deficit inflationary?' is an often-asked and clearly important question. Equally clearly, it is a question that cannot be answered with reference to either the d_3 or d_4 definitions of the deficit that I have identified as influencing aggregate demand and real interest rates, since these measures in no way depend on the rate of inflation. They are entirely real definitions. They could occur at any rate of inflation.

What meaning can we attach to the concept of an inflationary deficit? Do any of the other definitions posed above help? In particular, what about d_1 and d_2? Each of these definitions contains the inflation rate and each says that the deficit increases with the rate of inflation (with real money balances being a factor of proportionality linking the two), other things being equal. However, each definition also indicates that there are sufficient degrees of freedom for the perpetual issue of bonds on an ever-increasing scale to sustain any inflation rate regardless of the value of the deficit (whether measured on the basis of the d_1 or the d_2 definition). Thus, neither of these two definitions of the deficit provides a direct measure of its inflationary orientation.

In reaching this conclusion, it was necessary to say that any inflation performance could be achieved provided the future path of bonds was appropriate. This suggests that in trying to attach meaning to the concept of an inflationary deficit we need to pay attention not to some existing state of affairs at one point in time, but to a process over time. Thus, while there is no meaning to the notion of a state of inflationary deficit, there may be some meaning to the notion of an inflationary deficit process. This is the way in which several scholars with widely different viewpoints have sought to analyze the bond-financing of ongoing deficits.[8]

In an analysis of ongoing inflation, no explicit attention need be paid to fluctuations in income and employment around their average levels. Consequently, it is a full-employment variant of the deficit definitions introduced above that needs to be considered. Some care is required, however, in the definition of full employment - a matter I shall return to later in this section. For now, let us assume that the full-employment adjustment is correct. The starting point for the analysis is a full-employment statement of the government's real accounts, i.e.,

$$d^*_{1t} + \frac{r_t}{1+r_t} b_t - (b_t - b_{t-1} + m_t - m_{t-1}) - \pi_t m_t = 0. \qquad (9)$$

The variable d^*_{1t} is the full-employment level of government expenditures on goods and services less taxes (net of transfers), expressed in real terms. This variable is treated as exogenous in the analyses of Sargent and Wallace (1981a) and McCallum (1982).[9]

The government is presumed to chose a path for d^*_{1t} that is independent of the real rate of interest, the levels of real bonds and money balances outstanding, and the inflation rate. (For McCallum, d^*_{1t} is deterministic, whereas for Sargent and Wallace it is stochastic.) Note that the assumption that d^*_{1t} is an exogenous process is restrictive. It ignores any feedback effects from interest rates or inflation to the deficit. Nevertheless, it is a useful starting point. It shows what would happen if governments were totally unresponsive to any havoc they might create. It also perhaps shows tendencies that would emerge if governments were slow to respond to a deteriorating situation. For simplicity, the real rate of interest is treated as independent of the government's budget. This is probably a reasonable assumption for a small, open economy operating in the neighbourhood of solvency, but probably not otherwise.[10]

The rate of inflation is related to the level of real balances by way of a demand for money function and money market equilibrium. Thus there is a given (inverse) relationship between real balances and the rate of inflation, the latter being determined by the rate of growth of the nominal money supply. If the government's budget equation (equation (9) above) is satisfied, if the real full-employment deficit is exogenous, if the real rate of interest is given, and if the inflation rate is linked to the level of real balances by a demand for money function, then a rule for the growth rate of the money supply implies a path for the stock of real bonds. The question that can now be posed is this: Can a rule for the money supply be specified that delivers a desired rate of inflation regardless of the behaviour of d^*_{1t}? Or rather, is it the case that the entire sequence of deficits $\{d^*_{1t}\}$ may be such as to prevent a desired inflation path under any feasible rule for the growth rate of the money supply? Notice that the deficit concept relevant to this question is d^*_{1t} viewed as a sequence or process rather than as a single-point-in-time event.

Scarth (1980) and Sargent and Wallace (1981a) show that a Friedman (1959) k-percent rule for the money supply growth rate cannot work unless the deficit path is a deterministic one and of the 'right' size. They further show, however, that a Friedman (1948) 'monetize-the-deficit' rule can work, but that the deficit in that case determines the growth rate of the money supply and inflation. In that event, then, the rate of inflation depends directly upon the deficit sequence d^*_{1t}. Sargent and Wallace go on to show - and this is the 'unpleasant' aspect of their results - that if, in the face of a given exogenous deficit, an attempt is made to control inflation by slowing down the growth rate of the money supply, the effect will be a rise in the rate of inflation

It is easy to understand why these results arise. The attempt to pursue a fixed money supply growth rule with a random deficit requires that the path of bonds be random. This requirement, however, induces additional noise in the requirement to service the bond stock. Interest has to be paid on a random stock of bonds, which is added to the noise generated by the deficit itself. The result is a stochastic process that has no equilibrium. An attempt to slow down inflation by lowering the growth rate of the money supply simply involves issuing more bonds at the present time. If more bonds are issued, then more interest must be paid on them, and this implies that at some later stage more money must be printed to retire those bonds and to pay the interest that has been incurred by them.

Thus, tight money now implies more inflationary monetary growth later. This in turn induces a higher inflation rate now by a very simple and natural mechanism. Expectations of more rapid money growth later imply expectations of more inflation later. This leads to an expectation of a drop in the demand for money (to avoid the inflationary losses), which in turn has the same effects on inflation as a rise in the growth rate of the supply of money. Avoiding the higher opportunity costs of holding money, when the money supply growth rate has finally increased, involves lowering the demand for money before the money supply growth rate increases. This in turn increases the inflation rate before the inflationary rise in the growth rate of the money supply occurs. This process (conceptual process) has to unwind all the way back to the present, for only by reducing holdings of money balances now can the consequences of future inflation be avoided. Thus, lowering money balance holdings now has the same effect now on the inflation rate as a rise in the growth rate of the money supply now would have.

McCallum (1982) conducts an analysis similar to that of Scarth (1980) and Sargent and Wallace (1981) but uses a deterministic exogenous deficit path. He shows that in this case (implicitly in agreement with earlier findings) a Friedman k-percent rule can be followed provided that the deficit is not 'too large.' What 'too large' means in this context is that the growth rate of bonds implied by the deficit and the k-percent rule for the money supply must not exceed the sum of the real rate of growth of the economy and the rate of time preference. Clearly, the stock of bonds outstanding can grow at the growth rate of the economy without any consequence. They can, however, grow faster than the economy provided there is a finite present value to the entire future path of bonds outstanding.

None of the foregoing analyses make predictions about the world in which we live. Rather they generate predictions that are the logical consequences of following particular rules for deficit financing proposed by prominent economists and of following those rules in the face of an exogenous (unyielding) deficit process. It may be of greater interest than analyzing the consequences of rules advocated by economists to analyze the consequences of rules that would in fact be followed by rent-maximizing politicians and central bankers.

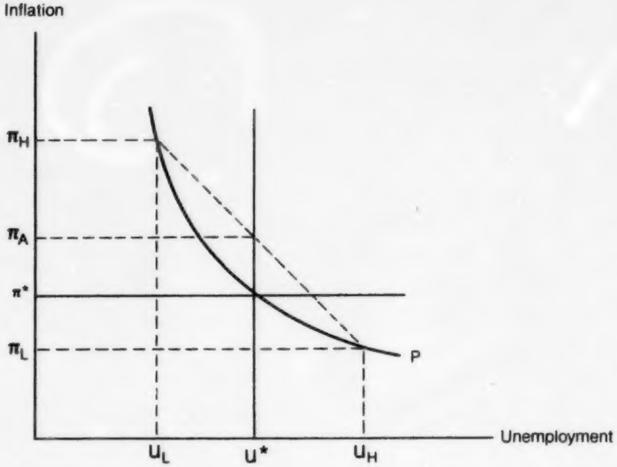
Barro (1983), Barro and Gordon (1982), and Blinder (1982) have developed suggestive theoretical models in this direction, but no definitive results are available. Clearly, there is need for both work on the positive theory of government and central bank behaviour and for statistical investigations of the behaviour of d^*_{lt}. The latter's exogeneity, or its links with other economic variables, and the relationship between the money creation process and the deficit thus defined are matters requiring urgent attention.

The preceding discussion paid no attention to fluctuations in the deficit induced by fluctuations in the level of economic activity. Clearly such fluctuations do occur, so the definition of the deficit employed has to be one that is controlled for such fluctuations. Does the 'full-employment' - perhaps more fittingly called the 'high employment' - adjustment already discussed do the required trick? There are good reasons for believing that it does not. In order to analyze the influence of the deficit on inflation, we clearly need to work with a definition of the deficit that is normalized for the average sustainable level of real economic activity. Is the average sustainable level the same as the full-employment (or high-employment) level? The answer is almost assuredly that it is not. There are two reasons for this answer, both of them probably important to the current Canadian situation.

First, there is an important difference between the natural or full-employment level of employment and the average level of employment that is compatible with a fixed average rate of inflation. This difference arises from the (universally accepted) fact of a non-linear relationship between inflation and unemployment.[11] The point is most easily made with the help of a diagram. Figure 1 shows a conventional non-linear Phillips curve (labelled P). The inflation rate π^* is the desired or target inflation rate, and u^* is the natural rate of unemployment. The vertical line above u^* can be thought of as the long-run Phillips curve. If it were possible to run the economy bang on the natural rate of unemployment at all times, then the target inflation rate π^* could be delivered. If, alternatively, there are fluctuations in activity about u^*, then u^* cannot be the average rate of unemployment unless inflation is continuously accelerating. To see this, consider a special case.

Imagine that the economy bounces between a high unemployment rate (u_H) and a low unemployment rate (u_L) and spends half the time at each. In that case, the average unemployment rate will indeed be u^*. What will the average inflation rate be? Clearly, it will be the average of π_L (associated with u_H) and π_H (associated with u_L). That average inflation rate is found where a cord joining the two relevant points on the non-linear

Figure 1
The Phillips curve and the sustainable average unemployment rate



Phillips curve intersects the long-run or vertical Phillips curve above u*. Thus the average inflation rate is π_A. Evidently, π_A is greater than π^*. If the economy operated at the average unemployment rate of u*, clearly the inflation rate, π^*, could not be the expected inflation rate, so the short-run Phillips curve labelled P could not be the relevant short-run Phillips curve. In fact, no equilibrium steady-state inflation rate exists in this situation. However, there obviously does exist an average rate of unemployment greater than u* but less than u_H that would deliver π^* as the average rate of inflation. That is, if the range of unemployment between u_H and u_L were held constant but the absolute levels of unemployment increased, it would be possible to find a combination of u_L, and u_H, averaging between u_H and u* that delivered π^* as the average inflation rate. The more the Phillips curve is curved and the greater is the range of variability in unemployment, the higher is the average sustainable unemployment rate relative to the natural unemployment rate. In adjusting the measured budget deficit for the effects of unemployment, it is the average sustainable unemployment rate and not the natural rate of unemployment that should be used.

The second set of factors that need to be taken into account in calculating the full-employment deficit consists of the structural and other non-cyclical factors that affect the natural rate of unemployment and that may operate for relatively long periods to keep the natural rate of unemployment at historically high levels. For the past several years, the natural rate of unemployment has been unusually high and it will probably remain high for several years to come. The natural rate of unemployment is of course nothing other than the rate of unemployment that reflects turnover in the labour market when all expectations concerning nominal magnitudes are fulfilled. As such, the natural rate of unemployment depends crucially upon the amount of resource reallocation (and therefore labour force reallocation) taking place in the economy. In recent years, the amount of reallocation in most industrial economies and certainly in the Canadian economy has been unusually large. Unusually big changes in relative prices associated with (but not exclusive to) the energy sector and with unusually large movements in real rates of interest have drawn resources away from capital- and durables-oriented industries and energy-intensive technologies towards other sectors of the economy. In the face of such large-scale reallocation, it is inevitable that the natural rate of unemployment should register a rise. Measures of the natural rate of unemployment for the United States based on an explicit measure of the amount of sectoral reallocation taking place suggest that much of the fluctuation in unemployment in that economy can be accounted for by these forces and that, in recent years, the amount of reallocation has been unusually large (see Lillien 1982).

Taken together, the two considerations described above indicate that a great deal of caution must be exercised in adjusting the budget deficit for the level of employment.[12] It is clearly inappropriate to calculate unemployment-adjusted deficits for unemployment rates in the neighbourhood of 5 or 6 per cent. Bossons and Dungan (1983), in their calculations, accept that judgment. They use unemployment rates between 7 and 7½ per cent (with 8.2 per cent for 1982). Perhaps such values seem high for the no-recession unemployment rate. However, when one takes account of the factors described above, it seems likely that even these numbers are too low. Unemployment rates closer to 10 per cent, at least for the foreseeable future, appear to be more appropriate given the current possibilities concerning the sustainable constant-inflation average unemployment rate.

I have suggested that the entire sequence of deficits as measured by the real deficit exclusive of debt interest (d_{1t}), adjusted appropriately for the average sustainable unemployment rate level (but with a smaller adjustment than that performed by Bossons and Dungan), is the appropriate concept of the deficit for judging the inflationary stance of fiscal policy. If this is correct, then we still have some potential for concern about the deficit. There appears to be a political process in place that is generating ever-increasing expenditures and ever-growing deficits - even on an employment-adjusted basis. Consequently, there is a substantial inflation potential built into the deficit process.[13]

It is also worth emphasizing that viewing the deficit as the outcome of an ongoing political process makes the cash-flow basis and not the accruals basis definition of the deficit the relevant one. The current value of the accruals-basis deficit may contain information about the future cash-flow deficit, but it is the sequence of cash-flows that has to be financed.

Although the deficit looks serious when it is viewed as an exogenous process, a very different conclusion emerges if the deficit is seen as responsive to monetary policy constraints. Specifically, as was shown by Sargent and Wallace (1981), if monetary policy can be placed on a k-percent growth rule and if the deficit itself can become an endogenous variable responsive to the constraints imposed on it by the growth rate of the money supply, then all will be well. Thus the real issue is not the size of the deficit but whether it is exogenous or endogenous. If the deficit is exogenous, with money supply growth reacting to it, we are, on current trends, in for substantially more inflation in the future. If the money supply growth process is or can be made exogenous and fiscal policy endogenous, then neither the size of the deficit at any given point in time nor, indeed, its historical path is relevant to the determination of the future course of inflation.

Whether the deficit is exogenous or is responsive to money growth, real interest rates, inflation, and a variety of other possible influences is, of course, an empirical question. Unfortunately, it is a question to which we do not know the answer. Obtaining that answer and, in particular, establishing whether or not the existing tax and spending programs and their built-in dynamic paths are consistent with returning us, eventually, to an acceptable level of steady-state inflation is an urgent and difficult research objective.

SUMMARY AND CONCLUSIONS

I have developed various alternative definitions of the deficit and analyzed their role in answering four questions of concern for macroeconomic policy. We have discovered that the full-employment deficit, defined to include the real interest payment on the government debt but excluding the inflation tax, is the appropriate concept of the deficit for studying the effects of fiscal policy on aggregate demand and (with qualifications) on the real rate of interest at a given price level. I have also suggested that aggregate demand as such has no simple effect on the level of real economic activity. Rather it is the level of aggregate demand relative to the level anticipated when existing wages and prices were determined that affects the level of actual output and employment. The concept of the deficit that helps us understand the determinants of aggregate demand is, therefore, of limited value in helping us understand what determines the actual level of economic activity. Furthermore, that measure of the deficit tells us nothing about the inflationary stance of fiscal policy, since it is a measure that is independent of inflation.

For understanding the effects of the deficit on inflation, the relevant deficit concept is one that focuses on the deficit process rather than the deficit state. The central issue is not the size of the deficit but whether it is exogenous or endogenous. If the deficit, measured to exclude fluctuations of the level of economic activity from its average sustainable level (and not from its full-employment level), is indeed exogenous, then it will dominate inflation and the relevant deficit measure is the difference between real government expenditures on goods and services and transfers net of taxes (appropriately adjusted for average sustainable activity levels). If, on the other hand, monetary growth is exogenous and the deficit ultimately responds to that exogenous monetary policy, then no matter what the deficit is at any given moment it is monetary policy that dominates the inflation path. We know too little about these processes. Clearly we need much more research, both theoretical and empirical, on government policymaking and its interactions with private economic behaviour.

NOTES

1 A similarly simple formulation could be achieved by assuming that all

the bonds are perpetuities. In fact, the present average term of maturity for Canadian government bonds is about six years. Nothing of substance turns on this simplification.

2 A more direct way of writing (1) is

$$G_t - V_t + B_{t-1} - \frac{1}{1+R_t} B_t + M_{t-1} - M_t = 0 \qquad (1')$$

The equation in the text is (1') with B_t added and subtracted. This has the advantage (useful later) of directly displaying the (implicit) interest on the government debt. In (1'), there is no distinction between interest payments and bond redemptions. The amount (B_{t-1}) is paid out on last period's bonds, and the amount (B_t) that will be paid out next period has generated a revenue this period of ($B_t/(1+R_t)$).

3 I am grateful to Brian Scarfe for pointing out my omission of open-economy considerations and to William Scarth for his kindness in providing me with an efficient and thorough guided tour through the literature on this topic. For a much fuller discussion of this and related issues, the reader is referred to Scarth (1975). Scarth's open-economy equation (7) in that paper (p. 11) is equivalent to my equation (1) above. Scarth's bonds are perpetuities, however, and he models tax collections (my V) endogenously.

4 The steps from equation (1) to equation (2) are as follows: First, define the GDP deflator at t as P_t. Then divide equation (1) by P_t to give the government's budget in constant dollars as

$$\frac{G_t}{P_t} - \frac{V_t}{P_t} + \frac{R_t}{(1+R_t)} \frac{B_t}{P_t} - (\frac{B_t}{P_t} - \frac{B_{t-1}}{P_t}) - (\frac{M_t}{P_t} - \frac{M_{t-1}}{P_t}) = 0. \qquad (a)$$

Next, multiply and divide the last and third last terms by P_{t-1}, use the fact that $P_{t-1}/P_t \equiv 1/(1 + \pi_t)$ and let lower case letters denote the real value of the relevant variable to give

$$g_t - v_t + \frac{R_t}{1+R_t} b_t - (b_t - \frac{b_{t-1}}{(1+\pi_t)}) - (m_t - \frac{m_{t-1}}{(1+\pi_t)}) = 0. \qquad (b)$$

Next, use the definition $(1+R_t) \equiv (1+r_t)(1+\pi_t)$ and multiply (b) by $(1+\pi_t)$ to give

$$(1+\pi_t)(g_t-v_t) + \frac{R_t}{1+r_t} b_t - ((1+\pi_t)b_t-b_{t-1}) - ((1+\pi_t)m_t-m_t-1) = 0. \quad (c)$$

Noting that $R_t-\pi_t-r_t\equiv 0$ and treating t as a short interval so that $\pi_t(g_t - v_t)$ vanishes gives

$$g_t - v_t + \frac{r_t}{1+r_t} b_t - (b_t - b_{t-1}) - (m_t - m_{t-1}) - \pi_t m_t = 0. \qquad \text{(d)}$$

which is equation (2) in the text.

5 See especially Lucas (1973) and Barro (1976). Although neither of these papers incorporates fiscal policy and therefore deficits, both could fairly readily be modified to do so.

6 See especially Fischer (1977) and Taylor (1979). For a general discussion of this and the new classical model, see Parkin (1982).

7 For a fuller development of this theme see especially Parkin (1982).

8 See, for example, Blinder and Solow (1973), Scarth (1976), and Christ (1979) for Keynesian analyses in which either the price level or the expected rate of inflation is given; Tobin and Buiter (1976) for both Keynesian and perfect foresight, full-employment analyses; and Scarth (1980), Sargent and Wallace (1981), and McCallum (1982) for perfect foresight or rational expectations analyses.

9 In the Keynesian models referred to in the previous footnote, deviations of output from full employment are a crucial feature of the analysis and tax collections are endogenous. Indeed, if an equilibrium exists in these models, it is achieved by an equilibriating change in income. For present purposes, it is appropriate to focus on the full-employment studies already referred to.

10 See Wirick (1983).

11 This analysis was first suggested by and draws on an important but unfortunately unpublished paper by Gray and Lipsey (1974).

12 An interesting additional cyclical adjustment may be necessary due to cyclical movements in the ratio of money to bonds. If that ratio rises in a recession, then the normal, cyclically corrected bond interest payments will exceed the actual payments.

13 What I am saying here in general and abstract terms David Slater put in more detailed and graphic terms in his remarks from the floor at the conference. He noted (as I interpreted him) the pressures for increased government spending resulting from the effects of an aging population on pension revenues and outlays and on health programs, the pressures for ever better education programs, and demands by civil servants for easier budgets and yet better pay and conditions for themselves.

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Brian L. Scarfe*

First, may I state that it is both a pleasure and a privilege to be invited to discuss Michael Parkin's fascinating and thought-provoking paper. Parkin demonstrates how a number of different measures of the real government sector deficit are related and shows us how these individual measures need to be used in order to address four important macroeconomic issues, namely the effect of the deficit on aggregate demand, real interest rates, output and employment, and the inflation rate.

Parkin agrees with other economists that the cyclically adjusted deficit is a more appropriate concept to use in addressing these issues than the actual deficit, but he cautions us that there are serious dangers in overcorrecting, and therefore understating, the size of the cyclically adjusted deficit. These dangers result from two circumstances: first, that over the business cycle the average level of unemployment that is consistent with a fixed or non-accelerating inflation rate exceeds the so-called natural rate of unemployment by an amount that depends not only upon the curvature of the underlying short-run inflation-unemployment trade-off function but also upon the amplitude of cyclical fluctuations; second, that the natural rate of unemployment may itself be underestimated in times that necessitate significant structural changes and resource reallocation in the economy.

Although Parkin deals explicitly with a closed-economy framework, it should be pointed out that in an open-economy case the important relationship between the real government-sector deficit and the growth of the stocks of money and bonds that underlies the whole of his analysis would have to be altered to allow for the fact that surpluses in the overall balance of international payments must generate growth in the stock of high-powered money or (to the degree in which the surplus is temporarily sterilized) in the stock of government bonds held by the private sector. Similarly, a deficit on the balance of payments must reduce the stock of high-powered money or (again to the degree in which the deficit is temporarily sterilized) the stock of government bonds held by the private sector. It is not clear, however, that allowing for the impact of these foreign sector transactions on an open economy would substantially alter Parkin's conclusions. Certainly, if these conclusions are correct, they would at least continue to apply to the analysis of the macroeconomic impacts of the U.S. federal deficit.

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Putting these preliminaries to one side, Parkin argues quite correctly that the most appropriate measure of the deficit for answering the question 'What is the effect of the deficit on aggregate demand at a constant inflation rate?' is one that is equal to the change in the real value of government sector liabilities that would accrue at the cyclically adjusted level of output and employment. Notice that this measure of the deficit includes real interest payments on the government debt but excludes the inflation tax on money-holding (or the fall in the real value of money). To the extent that tax-discounting of the future real interest burden of bond-financed debt occurs, this measure is larger than the deficit-generated growth in real private-sector wealth.

The impact of the real government sector deficit on aggregate demand and the real interest rate will depend upon the bond versus money composition chosen when the deficit is financed. The higher the proportion of the real government sector deficit financed by bond-creation, the larger will be the upward pressure on the real rate of interest and the smaller will be the overall positive impact on aggregate demand at a constant inflation rate. The larger the proportion of the increase in the real value of government sector liabilities that is financed by new money-creation, the smaller will be the upward pressure on the real rate of interest and the larger will be the overall positive impact on aggregate demand. On these points, I believe, there would be little disagreement among economists.

I turn now to the areas in which major disagreements may occur, namely with respect to the impact of the real government sector deficit on real output and employment on the one hand and on the rate of inflation on the other. Parkin seems to argue that in this context the most useful measure of the deficit would be simply the total financial requirements of the government expressed in real terms. If one accepts the twin monetarist assumptions that the equilibrium inflation rate is ultimately determined by the growth rate of the nominal stock of money, and that only unanticipated policy prescriptions acting on the economy can influence the volume of output and employment, then the cyclically adjusted real government sector deficit only affects the rate of inflation to the degree that it is expected, on a cumulative basis, to be monetized, and it can only affect the overall level of output and employment to the degree that private agents are unable to anticipate it.

To put the matter differently, except insofar as government budget deficits and surpluses lead directly to changes in the nominal stock of money, their only long-run impact is to alter the equilibrium real rate of interest. In so doing, government deficits and surpluses have important and often crucial longer-run effects on the structure of the economy. But as far as changes in the overall level of employment are concerned, over the longer term, fiscal policy is rendered ineffective by the complete 'crowding-out' of its impact.

Parkin then goes on to argue that the real issue does not concern the size of the cyclically adjusted deficit, but rather its degree of exogeneity. To the extent that an exogenously determined structural deficit exists, adherence to a continuously restrictive monetary policy may lead to an unstable growth path for the stock of government bonds outstanding, and perhaps also for the real interest rate. As more bonds are issued to finance the exogenously determined structural deficit, more interest must be paid in each period of time, and this may well eventually require that the money supply be permitted to grow in order to retire the larger stock of government bonds and pay the accumulated interest charges on them. This process will inevitably lead to higher rates of inflation in the future and, to the extent that it is currently anticipated by market agents, to higher inflationary expectations in the present. On the other hand, if the cyclically adjusted deficit is endogenously determined, continuous adherence to a restrictive monetary policy will eventually bring it into line. John Grant comes to a similar conclusion in his paper to this conference: 'As far as capital markets are concerned, the most important treatment for deficits is likely to be steadfast monetary restraint: a slow-acting cure, but a certain one.'

Thus, if Parkin's analysis is correct, the question of how the deficit is to be financed is crucially important to its potential impact on the rate of inflation. The mix of monetary and fiscal policies is therefore of vital importance, since it is possible for a combination of sustained large-scale fiscal deficits and tight monetary policy to lead to adverse effects on the asset structure of the economy and possible associated instabilities. Indeed, a twist towards a smaller cyclically adjusted deficit and perhaps a somewhat more elastic monetary policy might well have been advisable some three years ago (and was in fact advocated by myself, among others), though it is not totally clear that this would be the appropriate policy combination to suggest today.

Equally important, however, is a point that Parkin ignores. It is crucial not only how the deficit is financed; it is also crucial how the associated funds are spent. Real output and employment are surely dependent not only upon unanticipated policy manipulations; they are also dependent upon the growth and structure of the real capital stock. Surely deficits used to finance public sector capital formation and increase the productive potential of the economy are much less of a cause for concern than deficits used to finance public consumption. Thus, when Parkin concludes from his analysis that 'we face a potentially serious problem arising from an evolving deficit that has been too big, is too big, and promises to remain too big,' in my view he is actually also saying that the government sector itself is not only too big but also guilty of dissipating our wealth potential through an excess of bureaucracy and regulation - or, more generally, through government consumption as opposed to public sector investment in productive capital assets, including human capital assets. In this, I am inclined to agree.

Finally, although the current public sector deficit is overstated, given the absence of appropriate inflation-accounting for the interest paid on the government debt, and is not out of line when considered in relation to the depth of the current economic recession (although it is still perceived to be out of line, and perceptions are important to the behaviour of capital markets), I am inclined to advise that we not increase it further in the current round of federal and provincial budget preparations. A no-change fiscal scenario would be my recommendation and I believe I share this view with Parkin and with the OECD, which has indicated that Canada is in no position to actively follow policies that are more stimulative than current policies. The overall federal deficit needs to be reined in sharply over the next two or three years as economic recovery proceeds.

John Bossons*

Michael Parkin's paper provides a useful clarification of the various purposes for which the government deficit may be measured and, as well, of how it should be measured in each case. I want to emphasize the importance of recognizing the different purposes for which deficit measures may be used, as well as to discuss some of the issues which Parkin raises in his comments on my recent paper with Peter Dungan on this subject.[1]

Our paper was motivated by a belief that much of the concern over the size of the deficit expressed by non-economists reflects a widespread fear that the long-run rate of growth of the government debt has become insupportable. If we are correct in assuming this fear to be a major element in the current reactions of financial market participants, then it is of signal importance to obtain quantitative measures of the deficit that show what is happening to the long-run growth rate in the total real net liabilities of the government sector (or, alternatively, in the long-run growth rate of the ratio of government debt to GNP, including consolidated liabilities of the Bank of Canada as part of the government debt). To do so, it is necessary to estimate the empirical magnitude of the real full-employment surplus or deficit, as specified by the cyclically adjusted version of the third measure (d^*_{3t}) defined in Parkin's paper.

Parkin and I are in total agreement that this is the correct measure to use in evaluating whether the long-run fiscal position of the government has changed.[2] Depending on the question posed, either the level or rate of change of d^*_{3t} may be of interest. The rate of change of d^*_{3t} provides information on whether the government's longer-run fiscal stance is becoming looser or tighter. The level of d^*_{3t} is of interest in evaluating whether the existing 'social contract' represented by the current tax, transfer, and expenditure policies of the government sector is sustainable in the long run. Such an evaluation does not in itself presume that future governments (or the citizens that elect them) will necessarily want to continue these policies in an unchanged form, but is simply concerned with the feasibility of such continuance. From this viewpoint, a level of d^*_{3t} (expressed as a fraction of current real GNP) that exceeds some critical value may be viewed as eventually unsustainable.[3] This critical value is what would imply an unchanged average ratio of total government debt to GNP in the long run; it is equal to the product of some given target debt/GNP ratio and the likely average long-run growth rate of real GNP due to productivity increases and population growth.

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Note that I have here defined the purpose of d^*_{3t} as one of evaluating the feasibility of a given set of tax, transfer, and expenditure policies. This underlying issue is one of political economy, not macroeconomics. Nevertheless, it has macroeconomic implications to the extent that a set of government policies that is perceived as unsustainable causes investors to project an increased likelihood of future increases in taxes on income from capital. Other decisions may also be affected by fears of other tax increases (or of cutbacks in transfers or expenditures) that may occur in response to the political pressures induced by an increasing debt burden.

Given the potential macroeconomic (and political) importance of public perceptions of the long-term sustainability of government revenue and expenditure policies, it is clearly useful to provide accurate measures of the long-run fiscal balance of the government sector that are corrected for the short-term effects of macroeconomic fluctuations. From a social accounting viewpoint, the corrected measure (d^*_{3t}) is a more useful indicator than its unadjusted counterpart (d_{3t}). This is as much true during a recovery as it is during a recession. During a recession, the correction prevents the recession-induced increase in the unadjusted deficit from being perceived as a change in the long-run fiscal policy of the government sector. During a recovery, focusing attention on d^*_{3t} helps ensure that a reduction in the unadjusted deficit that is smaller than the recovery-induced deficit reduction is correctly perceived as a worsening of the government's long-run fiscal position.[4]

Turning to the actual measurement of the real structural deficit (d^*_{3t}), Parkin and I differ strongly on our interpretations of what is implied by 'full employment.' Dungan and I used 1979 factor utilization rates as a standard for this purpose, in part because most of the supply-side shocks that occurred during the 1970s were already reflected in these utilization rates. The sources of the 1981-2 recession were in monetary policy, not supply shocks. Moreover, the 7.5 per cent unemployment rate experienced in 1979 was significantly above the high end of estimates of the long-run natural equilibrium unemployment rate for that year.[5] To suggest, as does Parkin, that the natural unemployment rate is now in the neighbourhood of 10 per cent is casual empiricism taken to the extreme.

This comment should not be taken as a denial of the potential significance of structural shifts in employment due to changes in relative prices. Particularly when investment is generally depressed, as it is at present, such structural shifts in demand may be an important factor contributing to the persistence of unemployment. But one must be careful in interpreting reduced-form estimates adduced as evidence for the empirical significance of such effects.

Let me now turn from social accounting to deal with some of the issues raised by Parkin in describing the macroeconomic effects of the deficit. I will first deal with the empirical question of how fiscal policy changed during the onset of the 1982 depression and then turn to some theoretical issues.

An activist counter-cyclical fiscal policy would be one in which the real structural deficit (d^*_{3t}) was increased during an economic depression. In this, contrary to the impression created by Parkin's remarks at the end of the third section of his paper, Parkin and I are in agreement. What Dungan and I concluded in our paper (pp. 2-3) was that 'the tax increases and reductions in government expenditures implemented in the past two years (1981-2) have effectively eliminated the "chronic" federal deficit of the late 1970s.' In 1979, our measure of d^*_{3t} for the federal government amounted to approximately 1.5 per cent of GNP. By 1982, government policy changes had reduced this structural federal deficit to approximately zero. From a stabilization viewpoint, this change in fiscal policy was perverse.[6]

Whether the decrease in aggregate demand caused by the move to a more contractionary fiscal policy can be said to have resulted in a decrease in aggregate output is questioned by Parkin in the fifth section of his paper. This is not the place to deal with this issue at length. However, it should be noted that Parkin assumes that an aggregate supply function dependent on the ratio of actual to expected prices implies (1) that only unanticipated shifts in aggregate demand matter and (2) that only unanticipated deficits can affect economic activity. Moreover, Parkin argues that deficits must generally be regarded as anticipated. While the first of

Parkin's assumptions is generally accepted as a characterization of the determination of aggregate prices and output in a single-commodity macroeconomic model for teaching purposes, it requires very strong restrictions on the process by which expectations are formed to derive the 'implication' that deficits have no effect on aggregate output. As with other 'rational expectations' models, Parkin's presumed policy ineffectiveness breaks down quickly once the real-world complications of multiple commodities, information costs, and heterogeneous decision-maker expectations are introduced.

Parkin's analysis of the potential inflationary effect of deficits correctly emphasizes the necessity of modelling the linkage between structural deficits and longer-run rates of monetary growth. The structural deficit as defined above (d^*_{3t}) is a real variable that in itself has no monetary significance; a long-run inflationary impact can only be derived if a given sustained value of the ratio of d^*_{3t} to real GNP can be shown to be sufficiently high to imply unstable monetary growth. To put this in perspective, it is useful here to note than even in the United States, which is currently experiencing an unusually high structural deficit, the current ratio of the real structural deficit to GNP is generally estimated to be on the order of 2 per cent. It would take over 30 years of continued deficits on this scale to bring U.S. debt/GNP ratios back up to where they were at the end of the Second World War. At that point, the growth rate of real government liabilities would approximately equal the growth rate of the U.S. economy, thus satisfying the McCallum condition for potential price stability.

It is in fact a mistake to assume that the structural deficit is exogenously determined. Some interesting evidence on the longer-run behaviour of governments in response to deficits is presented in Section 2 of my paper with Dungan. The hypothesis advanced there (based in part on the Canadian response to the federal deficits created during the 1970s by the indexation of personal income tax rates in 1973) is that 'chronic' deficits are gradually eliminated, and that the 'steady state' to which Canadian governments tend to converge is a zero structural deficit.[7] Equally interesting, we show that the size of the deficit has had an important influence on the rate of growth of the government sector (as measured by the ratio of total government expenditures to GNP).[8]

I do not believe that it is a correct characterization of the political process to say, as does Parkin, that it appears to generate ever-increasing expenditures and deficits. While this view is a popular one, it is not supported by empirical evidence. A better characterization is that the political cost of expanding the relative size of the government sector is an increasing function of the size of the deficit and a decreasing function of the growth rate of revenues produced by the currently defined tax system. Moreover, deficits are in themselves politically costly, and these costs create pressures to reduce expenditure growth (and/or increase taxes) in order to lower the deficit. Viewed in this context, the U.S. structural deficit generated by the Reagan administration may well be politically the most effective way of lowering the growth of the U.S. government sector. To define the central issue in modelling the inflationary impact of the deficit as one of the exogeneity of the deficit is to ignore the relationship between the size of the deficit and other important features of fiscal policy.

NOTES

1 See J. Bossons and P. Dungan (1983) 'The government deficit: too high or too low?' Canadian Tax Journal 31, 1-29.

2 It should be emphasized that for this purpose d^*_{3t} must be defined on an accrual basis and so should include the change in the unfunded pension liabilities of the government sector. On this Parkin and I also agree. For a contrary view, see the comment by Asimakopulos and Ascah in the May-June 1983 issue of the Canadian Tax Journal.

3 The word 'eventually' should be underlined. In the short run, temporary growth in the ratio of total government liabilities to GNP is clearly feasible without affecting the sustainability of any given 'social contract' in the long run, even if such temporary growth is not subsequently reversed.

4 The estimates presented in the Bossons-Dungan paper indicate that, to keep the federal government's long-run real fiscal position unchanged, the real federal deficit would have to fall by $14 billion if the economy recovered to a level of factor utilization associated with a 7.5 per cent unemployment rate. In addition, the federal deficit as conventionally measured should fall by a further $6 billion if the inflation rate falls below 3 per cent (see Bossons and Dungan 1983, Table 11). Anything less than a $20 billion reduction in the federal deficit as the economy recovers to more normal levels of unemployment and inflation (here defined as 7.5 and 3.0 per cent, respectively) should thus be taken as evidence of a worsening in the long-run fiscal position of the federal government.

5 See the discussion of this issue in Bossons and Dungan (1983) 19, fn. 19. The estimates reported there suggest that the long-term natural rate for 1983 is likely below 6 per cent. While the estimates presented in Table 4 of the paper by Lilien cited by Parkin show a substantial increase in Lilien's estimated natural rate from the mid-1960s to the late 1970s, this increase is limited to 2.5 percentage

points. Moreover, Lilien's results are based on a reduced-form model that does not incorporate changes in the supply of labour due to the changing age/sex/race composition of the U.S. labour force or due to work-incentive effects of changes in transfer payment programs. Some portion of the secular changes in unemployment rates that Lilien attributes to structural shifts in the demand for labour is in fact attributable to structural shifts in labour supply of the kind reflected in the Dungan-Wilson estimates reported in Bossons and Dungan, ibid. Indeed, it is noteworthy that Dungan and Wilson's estimates of the increase in the natural rate over the 1965-79 period are almost identical to the estimates obtained by Lilien for the U.S. but ascribed by Lilien to different causal factors.

6 A somewhat different picture is presented by recently published estimates prepared by federal government officials (see Department of Finance (1983) The federal deficit in perspective, Chart 7). These estimates indicate that fiscal policy was contractionary to the degree indicated by the Bossons-Dungan paper during the 1979-81 period, in that the real (inflation-adjusted) federal deficit moved from approximately 1.7 per cent of GNP to zero over this period. However, the federal government estimates show a move to greater stimulus during 1982. This difference partly reflects a different treatment of changes in petroleum taxes, which are treated on more of a cash basis in the federal estimates.

7 This implies that, on average, the ratio of total real government debt to real GNP declines with time under peacetime circumstances. This has been empirically the case in both Canada and the United States during the post-Second-World-War period.

8 In general, the government sector has grown fastest when the government has had a 'chronic' structural surplus. Eliminating the motivational effect of the chronic surplus caused by inflation-induced increases in effective tax rates was one of the principal goals underlying the introduction of indexation of personal income tax rates in 1973. The shift to a chronic deficit caused by the resultant fall in the growth of government revenues coupled with built-in momentum in expenditure programs was an important element of the process which led to a halt in the growth rate of the ratio of federal expenditures to potential output (see Bossons and Dungan 1983, Table 2, 9).

MICHAEL PARKIN

There is a considerable measure of agreement between John Bossons and myself. Nevertheless, several issues divide us.

The first broad area of disagreement concerns the calculation of 'full employment' for the purpose of assessing 'full-employment deficit.' There appear to be three specific points of contention.

First, John Bossons says that 'the sources of the 1981-2 recession were in monetary policy, not supply shocks.' This leads him to the conclusion that the natural rate of unemployment did not increase materially in the recent recession and that the present rate is the same as the rate that would have been assessed in the late 1970s. I am less confident than Bossons about the sources of the 1981-2 recession. I certainly do not disagree that monetary policy played a critical role. However, I also am of the view that unusually large fluctuations in international relative prices and unusually high real rates of interest generated unusually large amounts of resource reallocation during that recession. Consequently, I would conjecture, for reasons identical to those set out by David Lilien (1982) (and cited in my paper), that the natural rate of unemployment has risen in recent years. By how much I do not know.

Second, Bossons argues that I suggest, in contradiction to what I have just said, that the natural unemployment rate is now in the neighbourhood of 10 per cent and that to make such a remark is 'casual empiricism taken to the extreme.' What I in fact said is that unemployment rates closer to 10 per cent, at least for the foreseeable future, appear to be more appropriate given the current possibilities concerning the sustainable constant-inflation average unemployment rate.' I take this to indicate that I am unsure of what the natural rate of unemployment is and believe that the sustainable average rate (a rate higher than the natural rate by virtue of the analysis presented in my paper) may be approaching 10 per cent. I certainly do not object to Bossons' attaching the label 'casual empiricism' to this number. I do object to his calling it my estimate of the natural rate. It is a conjecture about a number bigger than the natural rate towards which the sustainable average rate may be tending.

Third, we apparently disagree about the appropriate way in which to calculate the average sustainable unemployment rate. Bossons' comments do not deal with this issue. I assert that the Bossons-Dungan calculations are incorrect. They are based on the presumption that the economy is deterministic and not stochastic. Such an assumption is clearly untenable. How important this error is in quantitative terms I do not know. The question clearly requires further investigation before assertions as confident as Bossons' can be regarded as having sufficient credibility to provide a basis for the design and conduct of policy.

A second broad matter on which we apparently disagree concerns the use of macroeconomic theory for the purpose of reaching policy judgements and conclusions. In my own work I use quite explicitly specified, well understood macroeconomic models. I generate predictions from those models and make policy statements in the light of those predictions. Bossons asserts that 'as with other "rational expectations" models, Parkin's presumed policy ineffectiveness breaks down quickly once the real-world complications of multiple commodities, information costs, and heterogeneous decision-maker expectations are introduced.' It is difficult to know where to begin commenting on this amazingly obfuscating statement. I can only conclude that Bossons is attempting to muddy the waters by pretending that because the real world is complicated and not exactly described by my model that in some way it is characterized and described by his. The currently available generation of rational expectations macroeconomic models may well be inadequate. But their inadequacy pales into insignificance beside the inadequacy of the Keynesian models on which Bossons bases his policy conclusions. Where in the IS-LM expectations augemented Phillips curve models do we see 'multiple commodities, information costs, and heterogeneous decision-maker expectations?' I leave the question in rhetorical form.

Finally, Bossons and I disagree on how the currently evolving deficit should be read. Bossons sees this deficit as a transitory deviation from a long-run sustainable position that is compatible with macroeconomic stability. I am less sure. I certainly do not want to assert that Bossons' view is demonstrably wrong. I do worry, however, when conclusions such as his are reached in the absence of an appropriate, careful, statistical investigation of the stochastic processes governing the evolution of the deficit, revenues, real output, monetary growth, and, most important of all, the state of war and peace. Historically, this last factor more than any other has governed the evolution of deficits. To compare current debt-income ratios with those that prevailed at the end of the greatest war that mankind has ever seen hardly seems appropriate.

In summary, I believe that Bossons is too confident in his assertions about the natural rate of unemployment; that he has made analytical errors in translating those beliefs into calculations of the average sustainable high-employment deficit; that he is too cavalier in his dismissal of the best macro-economic models that the profession has so far managed to develop; and that his conclusions concerning the seriousness of the current deficit situation are insufficiently grounded in careful statistical analysis. My 'bottom line' is not that Bossons is wrong. It is that we do not know enough to state conclusions with as much confidence as Bossons is apparently ready to state them.

What does the public think about deficits?
What does Bay Street think about deficits?

Ian McKinnon*

The subject of this paper makes it substantially different from the other papers given at this conference. Faced with the sophisticated econometric and theoretical work being presented here, one is tempted to be apologetic about discussing public opinion data and to denigrate it as representing what Professor Modigliani might refer to as 'naive' views. Particularly when we are examining government actions, however, few things are more important than public opinion. It is perhaps a crude analogy, but nonetheless an accurate one, to say that, for governments, public opinion is the bottom line.

It seems to me, as a public opinion analyst, that many attempts to explain government actions underestimate the importance of people's perceptions and, particularly, their preferences as voters. Much economic analysis posits rational models of what should happen as opposed to what might happen, given the vagaries of human behaviour. On the other hand, the traditional opinion approach to the studying of consumer behaviour - market research - is premised on the notion that behaviour is motivated by product consideration alone - as if a downturn in consumer activity were somehow a function of growing dissatisfaction with product choice in the marketplace. Clearly, the events of the past two years have brought both of these traditional forms of analysis into question.

Of course, I have a vested interest in believing that a fuller understanding of how the individual behaves as a citizen - as opposed to how he or she behaves only as a consumer - can assist the more traditional forms of economic analysis. And it can assist the economist in understanding not only how the public behaves but how governments respond to that public behaviour. This understanding must begin with a knowledge of the current mood of the public.

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The Canadian public has been traumatized by the course of the last two years. Canadians' traditional beliefs have been contradicted by their current experiences and perceptions - yet they tenaciously continue to cling to those traditional beliefs. They have seen our problems worsen and become increasingly more complex, yet they continue to view them as aberrations - problems that we should not have, that we don't deserve, and that are eminently solvable. Canadians are absolutely tenacious in their conviction that Canada has the resources - physical, human, and financial - to solve our problems. This conviction is the key to both the public's perception of today's economic problems and its expectations with respect to government.

CANADIANS AND ECONOMIC ISSUES

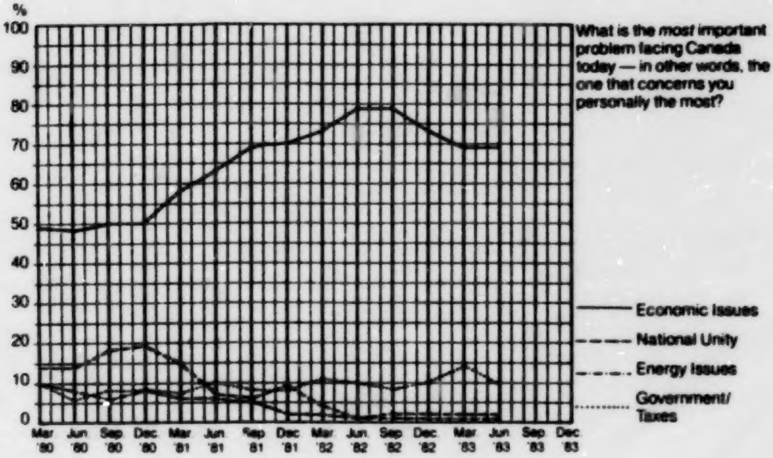
Let us begin by looking at what Canadians consider to be the most important problem facing the country. As we can see from Figure 1, concern about economic issues has climbed from the 50 per cent level three years ago to the 70 per cent level. The economy now dominates the political agenda.

Figure 2 shows that this increase in concern over economic issues has gone hand-in-hand with a precipitous decline in the public's assessment of the economy. Three years ago, 20 per cent of the adult Canadian population described the state of the economy as 'poor'; in June of 1982, 65 per cent used this description of the economy. Although matters have improved considerably since then, only a small minority have positive views of the economy.

While an exceptionally weak economy is unquestionably a liability for any government, the amount of pressure that it puts directly on the government depends upon the extent to which people hold the government responsible for the economic situation. This, in turn, is closely related to beliefs about the intrinsic solvability of economic problems - I have already said that Canada's problems are viewed as aberrations and solvable, but for government policymakers the vital fact is that three-quarters of the population believe that they can be solved in whole or in part, by the federal government (see Figure 3).

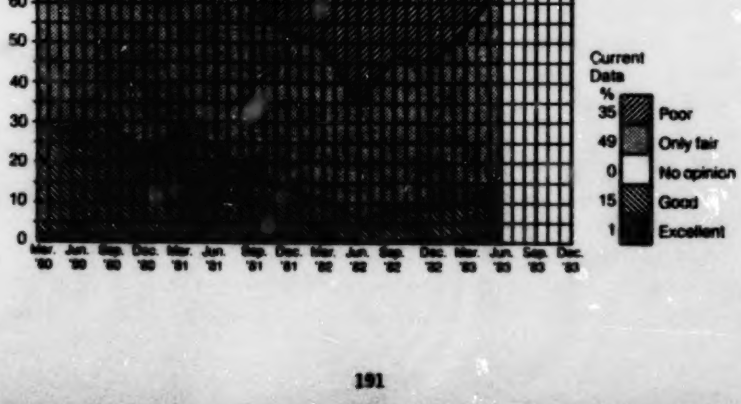
The result of this firm conviction that government can at least ameliorate Canada's problems, and of the growing concern with economic issues, has been strong pressure on government and persistent dissatis-

Figure 1
Canada's most important problems



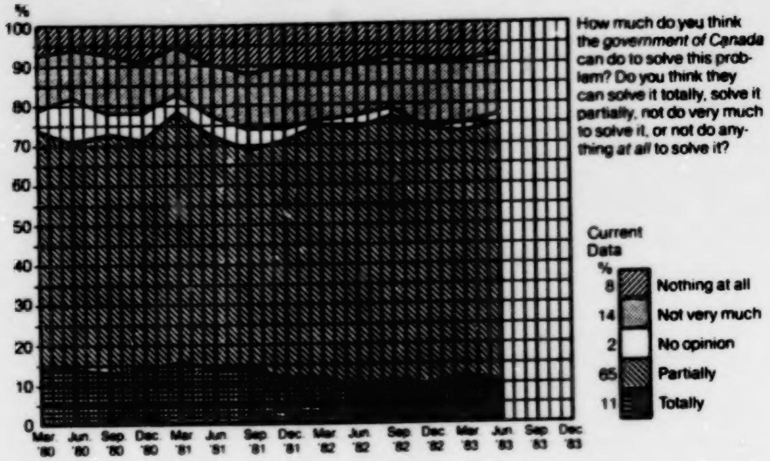
What is the *most* important problem facing Canada today — in other words, the one that concerns you personally the most?

Figure 2
Perceptions regarding Canada's economy



Generally speaking, how would you describe Canada's economy today? Would you say it is excellent, good, only fair or poor at this time?

Figure 3
Perceptions regarding the federal government's ability to solve Canada's most important problems

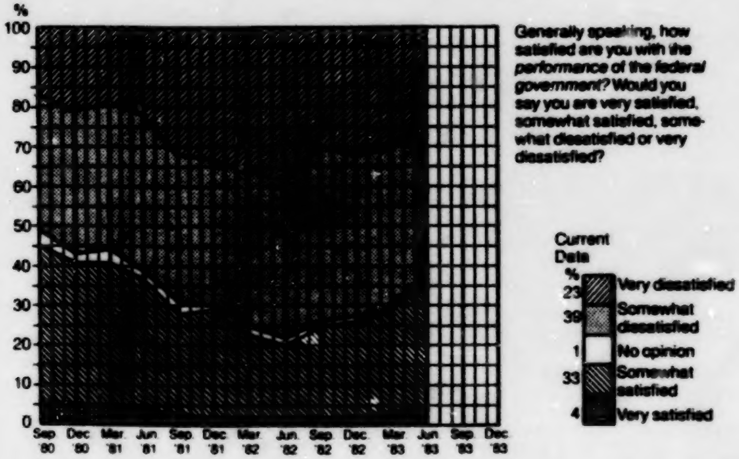


How much do you think the *government of Canada* can do to solve this problem? Do you think they can solve it totally, solve it partially, not do very much to solve it, or not do anything *at all* to solve it?

faction as adequate solutions have failed to emerge. As Figure 4 shows, the percentage of Canadians who were satisfied with the performance of the federal government dropped from 45 per cent in 1980 to 20 per cent by June 1982. A government faced with such a decline in public confidence had little choice but to act, or to be seen to act, to alleviate matters.

It is clear that the electorate now ascribes responsibility for macroeconomic performance to the government and the politicians. As a consequence, political survival may well depend upon being seen to act in the face of economic distress. Given these pressures, a status quo policy is a tremendous risk for any politician. Politicians are going to act; they will respond to popular wishes. The question remains: What does the public want?

To answer this question, particularly in the context of this conference's concern with the deficit, let us look in more detail at the current economic concerns of Canadians. As we saw earlier, almost three-quarters of Canadians view some economic concern as the most important problem facing Canada. Breaking the economic concerns into specific issues yields the results in Figure 5. Unemployment, mentioned by almost half the



Generally speaking, how satisfied are you with the *performance of the federal government?* Would you say you are very satisfied, somewhat satisfied, somewhat dissatisfied or very dissatisfied?

Figure 4
General assessment of the federal government's performance

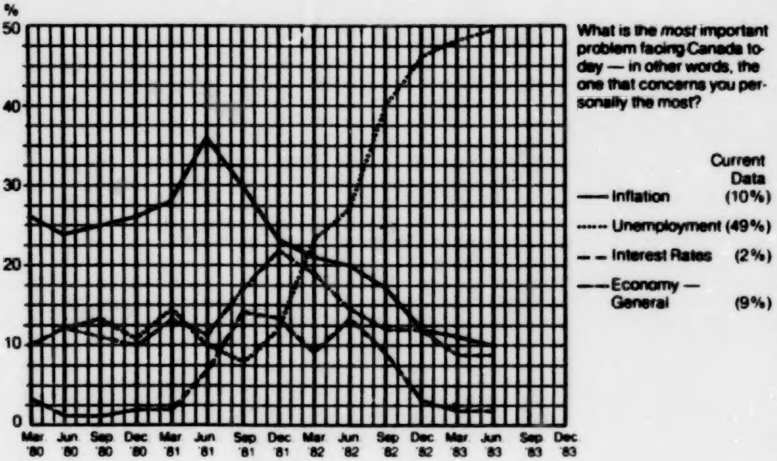
respondents as Canada's most important problem, now supersedes all other issues, and has replaced inflation as the primary concern. Governments will have to be seen to act on this concern.

I would now, à la Sherlock Holmes and the dog that didn't bark, draw attention to something that is missing from this list of problems: the issue of the deficit or the national debt. While this issue has occasionally been mentioned by respondents, only in March 1981 did more than 1 per cent of the Canadian electorate polled in Decima's quarterly surveys believe that it constituted the most important problem facing Canada. On that occasion, 1.6 per cent of our respondents mentioned the national debt or the deficit.

Let us summarize what we have found thus far:

- Canadians are convinced that their problems are solvable and, indeed, that the problems are aberrations.
- Their primary current concerns are economic. They are particularly concerned about unemployment, but not about the deficit.
- Canadians believe that the government can solve these problems, if not totally, then at least partially.

Figure 5
Canada's most important economic problems



What is the *most* important problem facing Canada today — in other words, the one that concerns you personally the most?

Together, these beliefs put tremendous pressure on governments to be seen to act to solve economic problems. We can rest assured that governments will respond to those pressures.

THE PUBLIC AND THE DEFICIT

Canadians expect action from their governments, that we know. Now let us examine the actions that they believe would do the most good.

In September 1982, we at Decima asked:

As you know, every government is faced with different priorities on which it could be concentrating. Some of these priorities could include creating jobs through government spending, stimulating industry through tax cuts, lowering interest rates, reducing government spending by limiting public service wage increases or encouraging more foreign investment. Of these five things ... which do you think should be the first priority of government in Canada? And which do you think should be the second priority of government?

Figure 6 shows the results of this poll. The biggest surprise in these results is the higher priority given to lowering interest rates than to 'creating jobs through government spending' (this after unemployment had significantly surpassed interest rates and inflation as concerns). We should also note the distinct secondary interest in 'reducing government spending by limiting public service wage increases'.

To probe this approval of the idea of retrenchment further, we specifically asked about the 'six-and-five' program:

> As you may also know, as one way of dealing with inflation, the June budget introduced a programme which would limit the size of salary increases for federal public servants to six per cent this year and five per cent next year. Generally speaking, would you say you approve or disapprove of the federal government's programme limiting wage increases for public servants to six and five per cent?

While the nearly 3:1 approval shown in Figure 7 is not surprising, it is interesting to bear in mind the relatively low priority accorded such initiatives in the previous question. The public seems to see such reductions in government spending as helpful and, perhaps, as a necessary first step, but it does not see them as immediate or vital prerequisites for economic recovery.

Next we looked specifically at the public's preferences with respect to the deficit itself and asked the following question:

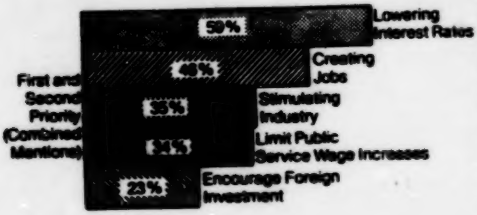
> There has been a lot of discussion recently about government deficits, the fact that governments spend more money than they collect in taxes. Some people say that governments must reduce their deficits in order to get the economy growing again. Other people say, that in tough economic times, governments should stimulate the economy to encourage growth, even if it means having large deficits. In your opinion, do you think it would help the economy a great deal, help it somewhat, not make any difference, hurt it somewhat or hurt the economy a great deal if governments reduce their deficits?

As Figure 8 indicates, there is clearly a preference for fiscal restraint. Moreover, there is relatively little dispute about the mechanism that should be employed for reducing deficits. We asked:

> Governments are considering two different ways of reducing their deficits ... by increasing taxes or by reducing the services which they would provide. Which way do you think governments should reduce their deficits ... increase taxes or reduce services?

The response to this question, shown in Figure 9, certainly does not depict a Canadian public given to Keynesian visions of governments spur-

Figure 6
Perceptions of government policy priorities

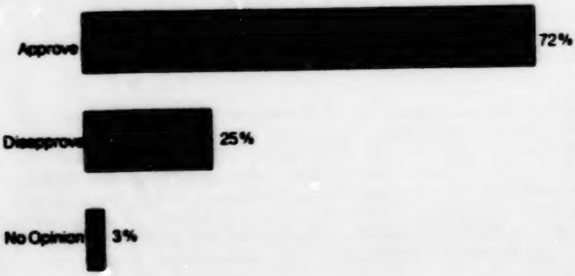


As you know, every government is faced with different priorities on which it *could be* concentrating. Some of these priorities could include creating jobs through government spending, stimulating industry through tax cuts, lowering interest rates, reducing government spending by limiting public service wage increases or encouraging more foreign investment. Of these five things . . .

Which do you think should be the *first* priority of governments in Canada?

And which do you think should be the *second* priority of government?

Figure 7
Levels of approval for the federal government public service wage restraint programme

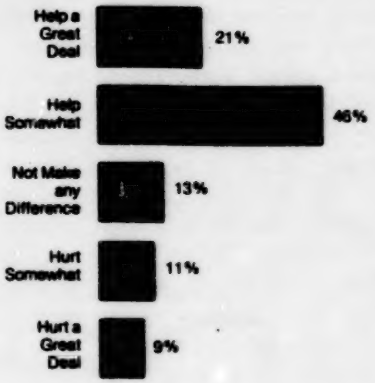


As you may also know, as one way of dealing with inflation, the June budget introduced a programme which would limit the size of salary increases for federal public servants to *six* percent this year and *five* percent next year. Generally speaking, would you say you approve or disapprove of the federal government's programme limiting wage increases for public servants to six and five percent?

ring aggregate demand through deficit spending. Instead, it strongly indicates a 'public household' view of what governments' actions should be. As individuals should try to economize and save in hard times, so too should governments.

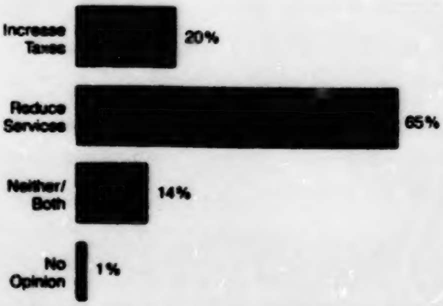
Does the Canadian public really want a much reduced level of government services? To look at this, Decima offered a number of trade-offs in the following fashion:

Figure 8
Perceptions of the effects of reducing government deficits on the economy



There has been a lot of discussion recently about government deficits, the fact that governments spend more money than they collect in taxes. Some people say that governments *must* reduce their deficits in order to get the economy growing again. Other people say, that in tough economic times, governments should stimulate the economy to encourage growth, even if it means having large deficits. In *your* opinion, do you think it would help the economy a great deal, help it somewhat, not make any difference, hurt it somewhat or hurt the economy a great deal if governments reduced their deficits?

Figure 9
Preferred method of reducing government deficits



Governments are considering two different ways of reducing their deficits . . . by increasing taxes *or* by reducing the services which they provide. Which way do you think governments should reduce their deficits . . . increase taxes or reduce services?

Now, I'm going to read you a list of some of the ways in which governments could cut their spending in order to reduce their deficits and I'd like you to tell me whether you would approve or disapprove of each one, if making that spending cut would significantly help to reduce government deficits. How about ... would you approve or disapprove of government doing that in order to reduce deficits?

As Figure 10 shows, by far the most popular candidate for a cut in spending is the public service. A full 83 per cent of Canadians would approve of governments reducing the number of people who work for them as a means of reducing their deficits. Although far from unanimous, Canadians are more inclined to approve (55 per cent) than disapprove (42 per cent) of reducing postal service to three days a week. Eliminating all financial support for the CBC would be the third most popular way of reducing the deficit, with 50 per cent of Canadians approving of such a move and 42 per cent disapproving. The public is also more likely to approve (50 per cent) than disapprove (44 per cent) of a drastic reduction in the number of people eligible for unemployment insurance benefits as a way of reducing deficits.

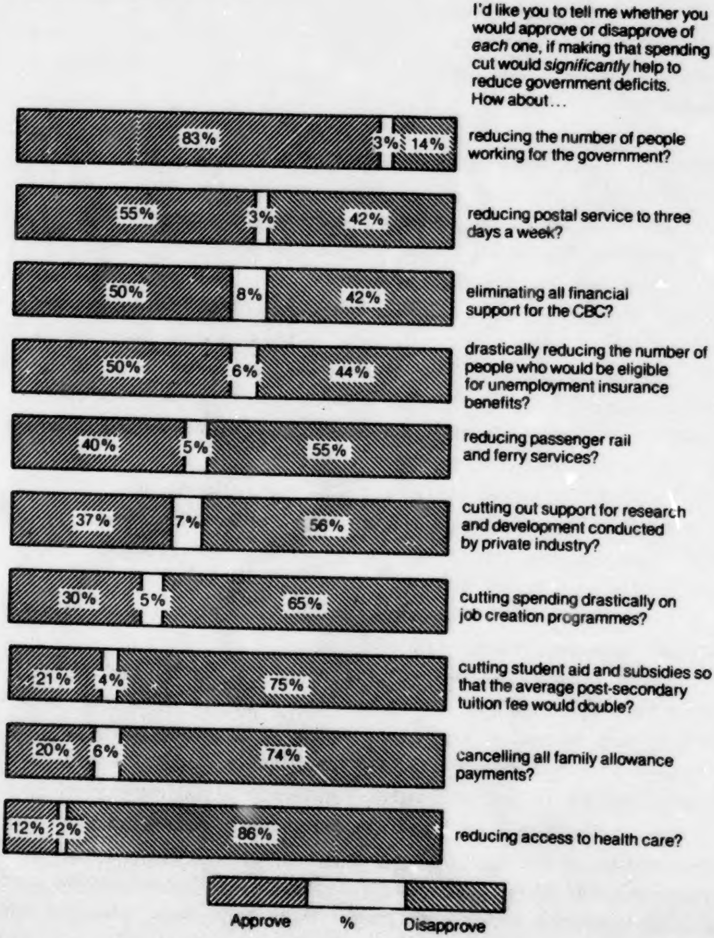
Outside of the four areas just mentioned, Canadians are more likely to disapprove than approve of the spending cuts suggested. Least likely to meet with disapproval would be reducing passenger rail and ferry services (55 per cent), and eliminating support for research and development conducted by private industry (56 per cent). Interestingly, cutting student aid and subsidies meets with a greater degree of disapproval (75 per cent) than cutting spending on job creation programs (65 per cent). The two possible methods of reducing government deficits that meet with the least amount of approval are the cancelling of all family allowance payments (20 per cent) and reducing access to health care (12 per cent).

The public clearly does not want to see a dismantling of the basic social programs that have been put in place over the past thirty years. In other words, government is stuck between a public opinion rock and a fiscal hard place. There is simultaneously a preference for decreasing the deficit and a continued demand for the maintenance of many of the most expensive educational and social welfare programs.

BAY STREET AND MAIN STREET

To complement the opinion data that we had gathered from the Canadian public, we also interviewed twenty-five senior members of the financial community. These interviews were conducted with members of banks, trust companies, and brokerage firms, with bond specialists, and with representatives of groups that borrow in the bond market or supervise large investment funds. Although the intention was to avoid professional economists, a few crept into the sample and provided a very interesting contrast to many of the others with whom we spoke.

Figure 10
Levels of approval for spending cuts in specific areas in order to reduce government deficits



Our first step was to repeat many of the questions we had already submitted to the public and to ask two things about them:

- How did the financial community respondent answer the questions?
- How did the respondent think the Canadian public had answered the same questions?

The first two columns of Table 1 compare the responses of the public and the financial communities. It is interesting to note that the financial community is more favourably disposed towards stimulating industry and reducing government spending, while the public's preference is for lowered interest rates and job creation programs. The picture becomes more interesting, though, when we consider the third column in Table 1, which shows the financial community respondents' estimates of the public answer. What is particularly noteworthy is that 74 per cent of the financial community respondents believed that job creation programs were the public's first priority; in fact, a plurality of Canadians wanted a lowering of interest rates to be the first priority.

The tendency apparent in Table 1 - to underestimate the fiscal frugality of the average Canadian - is quite apparent in the responses to the question regarding the effects on the economy of reducing the deficit. The irony here lies in the financial community's believing that Canadians are not all that conservative fiscally. In Table 2, we see a public more conservative than the financial community.

The same phenomenon was present when the public was asked to choose between a service and cutting that service, if by doing so it 'would significantly help to reduce government deficits.' In almost every case, the public was more willing to sacrifice than the financial community believed it was. With respect to one alternative - reducing postal service to three days a week - the public at large was significantly more approving than was the financial community.

However, the financial community was much more conservative than the general population with respect to the three major social programs that enjoy the greatest popular support - health care, family allowance, and post-secondary education. Regarding the first two, the financial community respondents recognized that their opinions were different from the public's; however, they did not recognize the strength of public resistance to the idea of cutting student aid (see appendix).

TABLE 1
Top two priorities of government

	Financial community %	Canadian public %	Assessment of public %
Creating jobs	18	46	96
Stimulating industry	70	35	13
Lowering interest rates	35	59	74
Reducing government spending	57	34	18
Encouraging more foreign investment	22	23	0

TABLE 2
Economic effects of reducing the deficit

	Financial community %	Canadian public %	Assessment of public %
Help a great deal	22	21	22
Help somewhat	35	46	22
Not make any difference	9	13	9
Hurt somewhat	26	11	22
Hurt a great deal	4	9	17

In summarizing these assessments by Bay Street of its own as well as Main Street's opinions, a number of points emerge:

- The Canadian public displays a significant fiscal conservatism with respect to the deficit.
- The public is willing to accept cuts in many spending programs; however, this willingness does not extend to some of the major 'safety net' social programs.

- In general, the financial community underestimates the fiscal conservatism of the public.

ISSUES AND ANSWERS ON BAY STREET

One of the first things that becomes apparent after interviews with a group of people in a single industry or organization is whether, on a particular issue, there is a consensus, a division into distinct opposing groups, or a range of opinion that reflects diverse but not systematically divided views. When we asked the financial community the most basic question in our interview - 'Given the current economic situation, do you believe that the current deficit of the federal government should be increased or decreased?' - it rapidly became apparent that there was no consensus. Moreover, there was not even a division of opinion into discrete camps; instead, opinions were arrayed across a broad spectrum.

As we have shown, there were significant differences in opinion within the financial community regarding the effect of a decreased deficit. That range of opinion extended to recommendations as to the optimal size of the deficit. The highest figure given was a recommendation that the deficit be increased by between $6 and $7 billion to a level of approximately $35 billion. At the other extreme was a recommendation that the deficit be reduced to $10 billion in the coming fiscal year. Overall, maintaining the deficit at its current level was the most popular option; it was favoured by approximately one-half of the respondents. Approximately one-third of the respondents wanted it reduced, while one-sixth wanted in increased.

In discussing this question, it became clear that one specific issue - the distinction between a 'cyclical' and a 'structural' deficit - has become a source of particular interest and concern in the financial community. The topic was mentioned spontaneously by about half of the respondents. Some of them even made a specific reference to a structural deficit as a full employment deficit.

Without exception, the respondents who raised this issue believed that the federal government had, over the past ten to fifteen years, created a very sizable structural deficit. The estimates of the size of that structural deficit ranged from $5 billion to 'nearly $20 billion.' Again without exception, the elimination of this structural deficit over the mid-term - usually three to five years - was accorded a very high priority for government. The existence of this structural deficit was often cited as a reason for the federal government's not being able to take more vigorously counter-cyclical actions right now.

Implicit in this description and critique of the government's actions is a distinctly Keynesian view of the world. Indeed, the vast majority of respondents in the business community were of the view that it is a government duty - more particularly, the federal government's duty - to stimulate the economy during recessions by running deficits. However, what was particularly interesting were the exceptions to this generalization. While a broadly Keynesian view of fiscal policy has become - if you will - the accepted view in the financial community, the opposition to this view in the financial community comes largely from the economists in the community.

In some question areas, there was no such diversity of opinion. Virtually without exception, respondents wished to see the scope of government involvement in the economy reduced - or, at least, kept from growing. While government involvement was not seen as an immediately pressing problem, reducing that involvement was generally viewed as a major long-run priority. This view arose from a profound conviction that governments are not as efficient as the market in allocating resources and that their presence distorts market signals. One example, DREE grants, came up in several of the interviews as the epitome of government's swimming against the tide of market signals and decisions. Finally, in this same context, a link was sometimes made between the inefficiency of governments and their persisting structural deficits.

The issue of crowding-out also produced a consensus among a large majority of the respondents. The following response was typical: 'It's not very close, but only because the economy is so weak and the demand is, relatively, so low.' Those who did not see crowding-out occurring may be divided into optimists and pessimists according to their estimation of the likelihood of its occurring if a recovery begins. The optimists believe that crowding-out may be avoided if the recovery is gradual, while many add that government must also rapidly reduce its demands on financial markets as recovery proceeds. Many respondents doubt that governments will or, indeed, are capable of, reducing their demands quickly enough. The pessimists, perhaps taking the large government presence as a given, assume that crowding-out will occur. A typical response was: 'Any type of economic upturn and the corporate sector will want to fund out the debt that they have in the short end and fund it out to term ... then you're going to see it.'

Whether or not crowding-out would occur with recovery, the question remains of just how large a deficit the Canadian bond market could handle without considerable dislocation or a very sharp increase in interest rates. The answers we obtained seemed to depend, in large measure, on the respondent's proximity to the bond market. The closer his involvement with the bond market, the more apocalyptic his response tended to be. The extreme view, held by a number of respondents, was that the bond market could not sustain current levels of government borrowing and any private sector demand. If the government's fiscal needs do not contract very quickly as recovery begins, then either the recovery will promptly die as a result of higher interest rates or the government may even run the risk of touching off hyper-inflation.

As with so many of the topics covered, the crowding-out question elicited a very interesting minority opinion. According to some respondents, crowding-out was occurring already, in the sense that the high real rates of return in the bond markets were keeping corporate borrowers out, and that these rates were maintained by the federal government's massive presence in those markets.

Further to the matter of the government's financing of its debt, respondents were asked whether the government should monetize any of its debt and whether this was taking place currently. The first question brought near unanimity: monetizing was seen as exceptionally harmful to the economy - far worse, for example, than crowding-out. As to whether it was occurring currently, there was an even division of opinion.

Response to the question of monetizing deficits frequently led to discussions of trust in government. Although these discussions tended to be very wide-ranging, the following views could be considered dominant:

- Trust between government and business has declined sharply over the past twenty-five years; this has affected their capacity to undertake cooperative activities.
- The markets largely ignore the federal government's announcements of its intentions - unless the news is adverse for the markets. In essence, the markets believe bad news, but have an 'I'll wait until I see the figures' attitude towards good news.
- A quotation will encapsulate another aspect of the relationship:

'There's a tremendous waste of time and effort taken up by second-guessing governments.'

- Finally, the restoration of confidence in government is seen to be a very lengthy process that will only result from an ongoing display of 'fiscal integrity.'

Respondents saw the Bank of Canada's role with respect to confidence in government in quite ambivalent terms. Many respondents saw the bank very nearly in the role of accomplice in monetizing the debt, others saw it as a hope for independent control of the money supply.

Given these sometimes conflicting views of the government's role and performance, what advice did members of the financial community have for the budget drafters? As we have seen, the responses as to the appropriate level for the deficit ranged very widely, with the modal response being in the mid to high end of the $20-$30 billion range. A frequent theme was that higher deficits would have a perverse effect: they would frighten business, which would reduce its spending by an even greater amount; thus the result would be a contraction.

There was also a tremendous range of suggestions for the specific forms that stimulation might take. Some respondents wanted to spur a consumer-led recovery by actions, such as sales tax reduction, that would affect consumer demand. Some wanted a range of industrial incentives, while others argued that such measures would be futile, given current capacity utilization. Almost all of the respondents who recommended a particular stimulative policy added the caveat that the program be limited in its duration. Sunset provisions were seen as vital to the creation of a more healthy economy.

A very substantial minority of respondents argued that there was virtually nothing that the government could do in the short run. These respondents felt that the government could not - and probably should not - reduce its deficit in the short run. On the other hand, the debt markets were so strained that further expansion of the debt would have perverse consequences. This 'immobilism,' brought on by past fiscal irresponsibility, could only be cured through a longer-term commitment to more responsible fiscal policies. In essence, the financial community did not see any rapid solutions that government could bring to bear on Canada's economic problems.

CONCLUSION

Where does all this put us in terms of the public's and the financial community's expectations with respect to government?

- The public believes that the government can do a great deal to ameliorate economic conditions, and that it can do it quite quickly; the financial community disagrees.
- The public, with a vision of the 'public household,' wants governments to retrench in hard times. A plurality of the financial community respondents believe that the government has a duty to conduct a policy of counter-cyclical stimulation.
- Both groups attribute significant responsibility to past government actions, many of which are seen to be wasteful.
- Finally, there is very strong public resistance to major changes in some of the most basic - and most expensive - of the social policies set in place over the past three decades.

This is hardly a picture to please governments: they are blamed for problems and charged with solving them, and yet the preferences for short-term policies and advice on them vary tremendously. On one thing both groups agree: the government is not an efficient instrument for ensuring economic growth.

Governments may be in virtually a no-win situation. Further stimulation may be both dysfunctional and unpopular. Retrenchment, while popular with the public, may worsen the situation and be seen to threaten programs that are almost inviolable.

It is hardly an easy time for either the economy or the government. The government, in seeking solutions, can only try to minimize the damage that it will suffer. Nonetheless, governments must act and, it is clear, that the public and the financial community support and expect initiatives that will lead in the longer term to leaner governments and lower deficits. Only the future will tell us whether governments can meet these demands.

APPENDIX

The Ontario Economic Council commissioned Decima Research Limited to sample opinions on government deficits among representatives of the financial community. This survey was conducted during the first two months of 1983. The same questions were posed to financial community respondents as had been asked by Decima in a national public opinion survey (n=1,500) conducted in September 1982. The financial community respondents were also asked to estimate the public's response to each question. The precise wording of each question and a statistical breakdown of the responses are presented below.

As you know, every government is faced with different priorities on which it could be concentrating. Some of these priorities could include creating jobs through government spending, stimulating industry through tax cuts, lowering interest rates, reducing government spending by limiting public service wage increases, or encouraging more foreign investment. Of these five things ...

		FINANCIAL COMMUNITY %	ASSESSMENT OF PUBLIC %	PUBLIC %
1A. Which do you think should be the first priority of government in Canada?	CREATING JOBS	9	74	24
	STIMULATING INDUSTRY	26	9	17
	LOWERING INTEREST RATES	22	9	32
	REDUCING GOVERNMENT SPENDING	44	9	19
	ENCOURAGING MORE FOREIGN INVESTMENT	0	0	8
	NO OPINION (VOL)	0	0	2
1B. And which do you think should be the second priority of government?	CREATING JOBS	9	22	22
	STIMULATING INDUSTRY	44	4	18
	LOWERING INTEREST RATES	13	65	27
	REDUCING GOVERNMENT SPENDING	13	9	15
	ENCOURAGING MORE FOREIGN INVESTMENT	22	0	15
	NO OPINION (VOL)	0	0	3

At the present time, the federal government provides money for a variety of provincial government programmes.

		FINANCIAL COMMUNITY %	ASSESSMENT OF PUBLIC %	PUBLIC %
2. Do you think the amount of money which the federal government gives to the provincial governments to pay for post-secondary education should be increased or decreased?	INCREASED	17	44	70
	DECREASED	78	44	10
	NO OPINION (VOL)	4	13	20

		FINANCIAL COMMUNITY %	ASSESSMENT OF PUBLIC %	PUBLIC %
3. Do you think the amount of money which the federal government gives to the provincial governments to pay for health services should be increased or decreased?	INCREASED	22	78	71
	DECREASED	65	9	9
	NO OPINION (VOL)	0	4	20
	STAY THE SAME (VOL)	13	9	++
4. Do you think the amount of money which the federal government gives to so-called "have-not" provinces in the form of regional equalization payments should be increased or decreased?	INCREASED	44	26	60
	DECREASED	39	57	13
	NO OPINION (VOL)	4	13	27
	STAY THE SAME (VOL)	13	4	++

For some time now, there has been a great deal of discussion about who should have the primary responsibility for paying for a number of areas that are important to society. I am going to read a list of some of these areas to you and I'd like you to tell me, for each one, who you think should have the primary responsibility of paying for them ... the federal government, the provincial government, the private sector or the individual. Who do you think should have the primary responsibility of paying for ...

		FINANCIAL COMMUNITY %	ASSESSMENT OF PUBLIC %	PUBLIC %
5. university and college education?	FEDERAL GOVERNMENT	17	30	28
	PROVINCIAL GOVERNMENT	22	57	42
	PRIVATE SECTOR	9	4	4
	INDIVIDUAL	52	4	24
	NO OPINION (VOL)	0	4	3

Who do you think should have the primary responsibility of paying for ...

		FINANCIAL COMMUNITY %	ASSESSMENT OF PUBLIC %	PUBLIC %
6. health and medical care?	FEDERAL GOVERNMENT	4	52	35
	PROVINCIAL GOVERNMENT	17	39	56
	PRIVATE SECTOR	35	0	2
	INDIVIDUAL	9	0	5
	FEDERAL/PROVINCIAL	4	4	0
	PROVINCIAL/INDIVIDUAL	4	0	0
	NO OPINION (VOL)	0	4	2
7. job retraining?	FEDERAL GOVERNMENT	26	61	33
	PROVINCIAL GOVERNMENT	17	17	39
	PRIVATE SECTOR	52	9	20
	INDIVIDUAL	0	4	5
	NO OPINION (VOL)	4	4	3
8. welfare?	FEDERAL GOVERNMENT	49	56	44
	PROVINCIAL GOVERNMENT	30	26	45
	PRIVATE SECTOR	4	0	2
	INDIVIDUAL	4	0	6
	FEDERAL/PROVINCIAL	9	13	++
	NO OPINION (VOL)	0	4	4
9. incentives for business?	FEDERAL GOVERNMENT	65	65	39
	PROVINCIAL GOVERNMENT	22	17	29
	PRIVATE SECTOR	9	13	21
	INDIVIDUAL	0	0	7
	FEDERAL/PROVINCIAL	4	0	0
	NO OPINION (VOL)	0	4	4

		FINANCIAL COMMUNITY %	ASSESSMENT OF PUBLIC %	PUBLIC %
10. pension plans?	FEDERAL GOVERNMENT	26	74	57
	PROVINCIAL GOVERNMENT	0	4	21
	PRIVATE SECTOR	57	13	11
	INDIVIDUAL	9	0	8
	INDIVIDUAL/PRIVATE SECTOR	9	0	0
	NO OPINION (VOL)	0	9	3

Who do you think should have the primary responsibility of paying for ...

		FINANCIAL COMMUNITY %	ASSESSMENT OF PUBLIC %	PUBLIC %
11. unemployment insurance?	FEDERAL GOVERNMENT	78	87	61
	PROVINCIAL GOVERNMENT	9	4	27
	PRIVATE SECTOR	4	0	4
	INDIVIDUAL	9	0	7
	NO OPINION (VOL)	0	9	2
12. caring for the elderly?	FEDERAL GOVERNMENT	35	61	48
	PROVINCIAL GOVERNMENT	44	30	40
	PRIVATE SECTOR	9	0	3
	INDIVIDUAL	9	4	6
	FEDERAL/PROVINCIAL	4	0	0
	NO OPINION (VOL)	0	4	3
13. protecting the environment?	FEDERAL GOVERNMENT	26	52	48
	PROVINCIAL GOVERNMENT	30	17	36
	PRIVATE SECTOR	30	22	5
	INDIVIDUAL	4	0	6
	PROVINCIAL/PRIVATE	4	9	5

		FINANCIAL COMMUNITY %	ASSESSMENT OF PUBLIC %	PUBLIC %
14. As you may also know, as one way of dealing with inflation, the June budget introduced a programme which would limit the size of salary increases for federal public servants to six per cent this year and five per cent next year. Generally speaking, would you say you approve or disapprove of the federal government's programme limiting wage increases for public servants to six and five per cent?	APPROVE	87	100	72
	DISAPPROVE	13	0	25
	NO OPINION (VOL)	0	0	2
15. There has been a lot of discussion recently about government deficits, the fact that governments spend more money than they collect in taxes. Some people say that governments must reduce their deficits in order to get the economy growing again. Other people say, that in tough economic times, governments should stimulate the economy to encourage growth, even if it means having large deficits. In your opinion, do you think it would help a great deal, help it somewhat, not make any difference, hurt it somewhat or hurt the economy a great deal if governments reduce their deficits?	HELP A GREAT DEAL	22	22	21
	HELP SOMEWHAT	35	22	46
	NOT MAKE ANY DIFFERENCE	9	9	13
	HURT SOMEWHAT	26	22	11
	HURT A GREAT DEAL	4	17	9
	NO OPINION (VOL)	9	9	0
16. Governments are considering two different ways of reducing their deficits...by increasing taxes or by reducing the services which they provide. Which way do you think governments should reduce their deficits... increase taxes or reduce services?	INCREASE TAXES	0	9	20
	REDUCE SERVICES	78	57	65
	BOTH (VOL)	22	26	5
	NEITHER (VOL)	0	0	9
	NO OPINION (VOL)	0	9	1

Now, I'm going to read you a list of some of the ways in which governments could cut their spending in order to reduce their deficits and I'd like you to tell me whether you would approve or disapprove of each one, if making that spending cut would significantly help to reduce government deficits. How about ... Would you approve or disapprove of government doing that in order to reduce deficits?

		FINANCIAL COMMUNITY %	ASSESSMENT OF PUBLIC %	PUBLIC %
17. cutting student aid and subsidies so that the average post-secondary fee would double?	APPROVE	57	43	22
	DISAPPROVE	43	52	75
	NO OPINION (VOL)	0	4	3

How about ...

		FINANCIAL COMMUNITY %	ASSESSMENT OF PUBLIC %	PUBLIC %
18. drastically reducing the number of people who would be eligible for unemployment insurance benefits?	APPROVE	65	31	50
	DISAPPROVE	35	65	44
	NO OPINION (VOL)	0	4	6
19. reducing postal service to three days a a week?	APPROVE	44	13	55
	DISAPPROVE	57	78	42
	NO OPINION (VOL)	0	9	3
20. reducing access to health care?	APPROVE	30	13	12
	DISAPPROVE	70	78	86
	NO OPINION (VOL)	0	9	2
21. cutting out support for research and development conducted by private industry?	APPROVE	35	44	37
	DISAPPROVE	65	52	56
	NO OPINION (VOL)	0	4	8
22. cancelling all family allowance payments?	APPROVE	57	4	21
	DISAPPROVE	44	91	74
	NO OPINION (VOL)	0	4	5

		FINANCIAL COMMUNITY %	ASSESSMENT OF PUBLIC %	PUBLIC %
23. cutting spending drastically on job creation programmes?	APPROVE	61	9	30
	DISAPPROVE	39	87	65
	NO OPINION (VOL)	0	4	5
24. reducing passenger rail and ferry services?	APPROVE	44	26	40
	DISAPPROVE	57	70	55
	NO OPINION (VOL)	0	4	5
25. reducing the number of people working for the government?	APPROVE	96	78	83
	DISAPPROVE	4	13	14
	NO OPINION (VOL)	0	9	3
26. eliminating all financial support for the CBC?	APPROVE	61	52	50
	DISAPPROVE	39	44	42
	NO OPINION (VOL)	0	4	8

NOTES Owing to rounding, responses may not sum to 100 per cent.
Financial community n=23, public n=1,500.
++ indicates responses were not recorded.

Fiscal policy 'crowding-out' of private investment in an open economy: the case of Canada

R. G. Wirick*

Analysis of possible channels for fiscal policy 'crowding-out' of private investment in a small, open economy is significantly different from, and in many ways substantially simpler than, the analogous task for a closed (or large, open) economy. Both the difference and the relative simplicity arise from the fact that in a creditworthy country such as Canada, gaps between domestic savings and investment can be financed by virtually unlimited international capital flows at an exogenous world interest rate. Indeed, the standard textbook model of a small, open economy, drawing on the work of Fleming (1962) and Mundell (1963), indicates that when international capital markets are well-integrated, stimulative fiscal policy will have no adverse effect at all on domestic investment.[1]

In a number of ways, the Fleming-Mundell model is simplistic. For example, in keeping with its Keynesian roots, it incorporates the assumption of a fixed aggregate price level. Moreover, it is a (timeless) comparative static model that ignores all dynamic effects stemming either from price, output, or exchange-rate expectations or from asset accumulations. Yet despite these limitations, the Fleming-Mundell analysis is an exceedingly useful point of departure for an examination of the effect of fiscal policy on investment. Its conclusions on this particular issue are relatively independent of the restrictiveness of its macroeconomic assumptions; they rest principally upon the very basic idea that profit-maximizing arbitrage behaviour will assure equal returns for equivalent financial instruments.

The methodological approach of the present paper is to examine this arbitrage behaviour in some detail, with particular emphasis on the specific

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circumstances facing Canada. The bulk of the analysis assumes that fiscal policy crowding-out of private investment occurs if (and only if) fiscal policy results in an increase in borrowing costs to Canadian corporations.[2] Consideration is given to possible influences on both long-term and short-term borrowing costs. Throughout the paper, United States inflation and interest rates are considered to be unaffected by any change in Canadian fiscal policy.

LONG-TERM BORROWING COSTS: AN ANALYTICAL PERPSECTIVE

Consider the following definitional indentity:

$$i_{CC} \equiv (i_{CC} - i_{CG}) + (i_{CG} - i^{*}_{CG}) + (i^{*}_{CG} - i^{*}_{USG}) + i^{*}_{USG}, \qquad (1)$$

where

i_{CC} = the interest rate on long-term Canadian corporate bonds, issued in Canadian dollars;

i_{CG} = the interest rate on long-term Government of Canada bonds issued in Canadian dollars;

i^{*}_{CG} = the interest rate on long-term Government of Canada bonds issued in United States dollars;

i^{*}_{USG} = the interest rate on long-term United States Treasury bonds, issued in United States dollars.

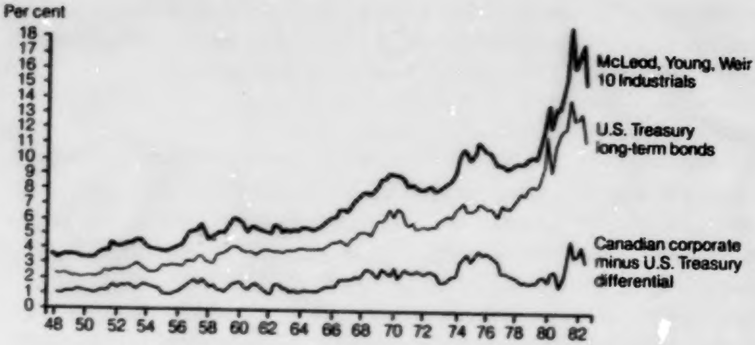
The question of whether stimulative fiscal policy raises long-term nominal corporate borrowing costs, i_{CC}, then depends on whether such action increases one or more of the interest rate differentials of equation (1). (Historical movements in i_{USG} and i^{*}_{CG} are given in Figure 1.) The usefulness of such a taxonomic approach lies in the fact that each of these differentials is determined by quite separate economic influences.

Alternatively, it could be argued that the appropriate method of measuring borrowing costs is to analyze real, not nominal, interest costs. Equation (1) can be rewritten to facilitate such an analysis. Specifically,

$$(r_{CC} + \hat{\pi}_{C}) = (i_{CC} - i_{CG}) + (i_{CG} - i^{*}_{CG}) + (i^{*}_{CG} - i^{*}_{USG}) + (r^{*}_{USG} + \hat{\pi}_{US})$$

or

Figure 1
Long-term bond yields: domestic Canadian corporate versus United States Treasury bonds, 1948-82



SOURCE: CANSIM.

$$r_{CC} = (i_{CC} - i_{CG}) + [(i_{CG} - i^*_{CG}) - (\hat{\pi}_C - \hat{\pi}_{US})] + (i^*_{CG} - i^*_{USG}) + r^*_{USG}, \tag{2}$$

where

$\hat{\pi}_C$, $\hat{\pi}_{US}$ = the average expected rates of inflation in Canada and the United States, respectively, over the bond maturity period;

r_{CC} = the real interest rate on long-term United States government bonds ($\equiv i_{CC} - \hat{\pi}_C$);

r^*_{USG} = the real interest rate on long-term United States government bonds ($\equiv i^*_{USG} - \hat{\pi}_{US}$).

Equation (2) states that real Canadian corporate borrowing costs are equal to the (exogenous) real United States government bond rate plus, again, three interest-differential terms. The first and third terms are identical to those given in equation (1), while the second term is altered only by subtracting the difference in (long-term) expected Canadian and American inflation rates.

It is clear that in a world of perfect information and frictionless markets real, not nominal, interest rates should be the focus of attention. However, nominal interest rates may also affect capital expenditure decisions under 'real world' conditions - for example, by creating corporate cash-flow problems or because the tax system is not neutral with respect to changes in the inflation rate.[3] All subsequent analysis considers both real and nominal interest-rate channels, and these discussions will make it clear why equation (2) is written in the particular form used.

The Canadian corporate interest premium

Consider the first interest-differential of equations (1) and (2) - a differential that could be labelled the Canadian corporate premium. The fact that such a premium exists indicates that capital market lenders prefer Government of Canada bonds to corporate bonds. One reason for this preference, and almost certainly the most important, is the perceived greater default risk for corporate debt. Obviously, the extent of this added risk varies, from a very small increment for top-rated corporate debt issues to a rather sizable premium for corporations under serious financial pressure.

In addition to a premium for default risk, corporate interest rates may include a compensation for higher transactions costs. These higher costs reflect, in part, a thinner market (and therefore lower liquidity) for debt issues of any specific company than for Canadian government bonds and therefore somewhat higher bid/ask spreads. The transactions costs may also include higher 'monitoring' costs - for example, the costs of assessing whether the default risk of a particular bond has changed.

Another factor affecting the corporate interest premium is investors' desire for portfolio diversification. In general, risk-averse investors will decrease the chance of catastrophic loss by diversifying their portfolio investments across a wide range of income-earning assets. To the extent that holdings of any particular asset decrease the overall income variability of the portfolio, that asset can be an attractive risk-reduction vehicle, even if its own inherent return is quite uncertain.[4] This argument implies that the corporate interest premium can alter if the relative portfolio-diversification characteristics of government and corporate bonds alter, or if the relative supplies of these instruments change. For example, an increase in the supply of corporate bonds might raise the interest premium, even if the inherent default risk were no greater than before, because this risk could not be as easily minimized through diversification (since on average corporate bonds would now constitute a higher proportion of the average investor's portfolio).

In the present instance, however, this diversification effect is not likely to be of very great importance. For one thing, since the residual holder of both Canadian corporate and government debt is the foreign sector, and since the Canadian economy is 'small', the proportion of either Canadian private or public bonds in foreign investors' portfolios is also likely to be small. Therefore, changes in relative Canadian supplies should not significantly shift portfolio preferences. Moreover, diversification is only important to the extent that the two bond risks are imperfectly correlated - in particular, to the extent that holding corporate bonds may help to guard against the risk of government bond default.[5] Yet it is difficult to imagine circumstances in which the Canadian government would default on its obligations but Canadian corporate bonds would remain default free. For both of these reasons, changes in relative bond supplies are unlikely to explain much, if any, of the movement in the corporate interest premium.[6]

Therefore, if expansionary fiscal policy does affect this premium, it is likely to do so by influencing either differential transactions costs or relative default risks. The first of these possibilities would appear to be relatively remote. Increases in the government debt might conceivably 'thicken' the government bond market and therefore lower costs of government bond transactions. But such an occurrence is unlikely to be of any major significance, and in any case it would raise the premium by causing a fall in i_{CG}, relative to i_{CC}.

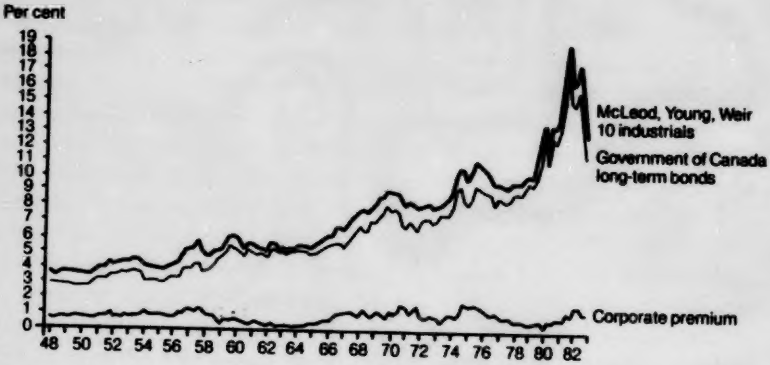
The major consideration must be the effect of stimulative fiscal policy on relative default risk. There are two possible arguments here. The first is that the spectre of rising fiscal deficits could kindle fears of government default and hence raise i_{CG}. However, whether in such a situation the corporate premium would fall by an equivalent amount is a debatable matter. The economic disruption that would accompany such a situation, raising fears of escalating future tax rates, severed international capital markets, and possible domestic political crisis, would almost certainly have an adverse effect on confidence in corporate, as well as government, solvency. As a result, the corporate interest rate could rise as much or more than the government rate. Although this is a harrowing possibility, it should be emphasized that at no time in the historical past, nor under any of the scenarios currently envisioned, has the risk of government default been considered to have more than a small probability. In any case, if this probability did start to grow, the effect would appear first in international capital markets. Consequently, further discussion of this point is deferred to the analysis of Canadian international interest-rate premium ($i^*_{CG} - i^*_{US}$).

Stimulative fiscal policy can affect the corporate premium in another, more likely fashion. Although a major portion of private default risk is related to company-specific circumstances, default risk for the private sector as a whole varies strongly with overall cyclical movements in the economy. A major cyclical downturn not only raises the number of actual bankruptcies, but also increases the immediate chance of insolvency for virtually all firms. The extent to which this risk gets reflected in a higher interest premium will depend not only on the severity of the recession, but also on the degree to which this severity was unanticipated and on the prospect for future recovery. For example, if cyclical contractions are mild and relatively regular, then the corporate (default) premium on long-term bonds should show only modest cyclical patterns.[7] On the other hand, a recession that is unexpectedly strong, and/or one in which the prospects for recovery are more uncertain, may markedly raise market fears of default.

Therefore, fiscal policy (and for that matter monetary policy) could, in principle, reduce the magnitude of the corporate interest premium in at least two ways. First, activist stabilization during any particularly severe economic downturn should moderate default fears over that time period, with resulting downward pressure on corporate bond rates. Second, to the extent that government policies act to smooth cyclical fluctuations in general, there should be less chance of unfortunate cyclical suprises. Both the average default premium and the cyclical sensitivity of this premium should be correspondingly reduced. All this leaves open the question of whether 'real world' fiscal and monetary policy can be expected to operate on aggregate demand in a counter-cyclical fashion.[8] But the essential point is, nonetheless, a challenging one, for it implies that during a steep recession a deficit-financed fiscal stimulus may actually decrease Canadian corporate interest costs, by lowering default risk.

In summary, the discussion to this point indicates that the corporate interest premium may vary systematically over the economic cycle, but that in 'normal' circumstances it is unlikely to be very large. Furthermore,

Figure 2
The Canadian corporate long-term bond premium, 1948-82



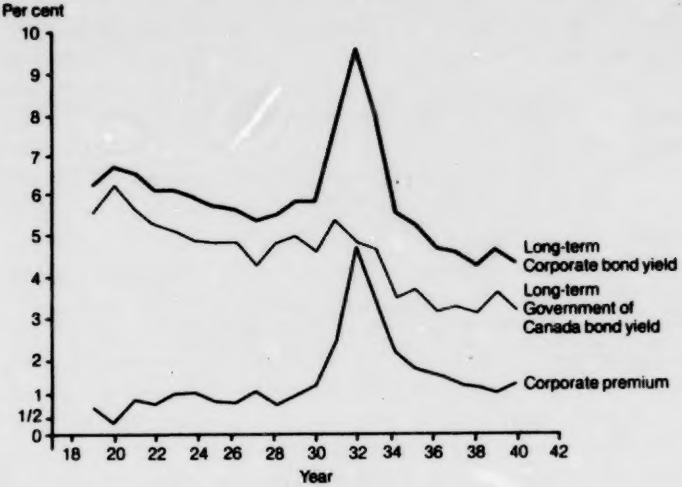
SOURCE: CANSIM.

fiscal deficits could cause investment crowding-in, rather than crowding-out.

Evidence on actual behaviour of the Canadian corporate premium is given in Figure 2. As can be seen, the corporate and government bond yields follow each other's movements very closely; most of the variation in the corporate rate reflects a movement in the underlying government rate, with the gap between the two generally ranging between 40 and 80 basic points. There is also some evidence of cyclical variability in the corporate premium. For example, in the current steep recession (from mid-1981 to the present), the interest premium has averaged well over 100 basic points, peaking at close to two full percentage points in the spring and summer of 1982. There are similar high interest spreads during the 1974-5 and 1970-1 recessions, and to a lesser extent during the milder 1957-8 slowdown.[9]

Additional and more spectacular evidence of business-cycle effects on the corporate bond premium can be found in the experience of the Great Depression. As is shown in Figure 3, the corporate/government interest spread averaged less than 1 percentage point during the 1920's. During the terrible economic plunge of 1929-33, when real Canadian GNP fell by a

Figure 3
The Canadian corporate premium, December rates 1919-40



SOURCE: Urquhart and Buckley, *Historical Statistics of Canada.* (Toronto: MacMillan Co. of Canada, 1965).

third, federal long-term bond yields also dropped - supporting the standard wisdom that the Depression was a time of low (nominal) interest rates. However, during the same period corporate bond yields rose dramatically, peaking at close to 10 per cent at the end of 1932; the corresponding corporate premium was almost 5 percentage points. Only as the economy started its long and painful recovery did this premium drop back to modest values. There is little doubt that a deficit-financed fiscal stimulus in the early 1930s would have helped to lower, not raise, corporate interest rates.

The currency-related differential

The second term of equation (1) is the differential between the interest rate paid by the federal government on bonds issued in Canadian currency and that paid on U.S. dollar issues. Since the issuer is identical in both cases, a well-functioning capital market should distinguish between the two types of bonds only on the basis of the probability distribution of future exchange values between Canadian and American currencies. At one extreme, if it were known with certainty that the exchange rate would remain fixed at its present level indefinitely into the future, then the two bond yields should be identical. Since this is obviously not the case, both the expected future movement in the exchange rate, and the risk associated with the variance of actual future exchange rates around this expected value, will create a finite currency-related interest differential. For example, if the Canadian dollar is expected to depreciate against the U.S. dollar by an average of 1 per cent a year, then by itself this expectation would cause a Canadian-dollar denominated bond to carry (approximately) a 1 per cent higher interest rate than a U.S. currency issue of the same maturity period. On the other hand, anticipated appreciation of the Canadian dollar would lead, other things being equal, to a negative differential between the yields of the Canadian and American currency issues.

Further insights into the role of exchange-rate expectations can be obtained by examining the corresponding currency-related term in equation (2) for the real interest cost of borrowing. Specifically, this term is:

$$[(i_{CG} - \overset{*}{i}_{CG}) - (\hat{\pi}_C - \hat{\pi}_{US})].$$

If the currency-related differential in nominal interest rates increases because of an expected future depreciation of the Canadian dollar, then this term implies that there will be resulting upward pressure on Canadian real interest rates only to the extent that the expected depreciation exceeds the expected excess of the Canadian over the U.S. inflation rate. The phrase real exchange rate is sometimes used to mean the measured exchange rate (i.e., the price of the Canadian dollar in terms of the U.S. dollar) multiplied by the ratio of Canadian to American domestic price levels. A drop (rise) in this real exchange rate roughly represents a deterioration (improvement) in the Canadian terms of trade with the United States.[10] The previous observation can, therefore, be rephrased to say that an expected exchange-rate depreciation will cause Canadian real interest rates to rise only if, and to the extent that, the real exchange rate also is expected to depreciate. In general, over long periods of time, purchasing-power-parity pressures cause exchange-rate movements that offset any significant difference in inflation rates.[11] Therefore, the chance of substantive long-term movements in the terms of trade is unlikely, and hence any induced effect of currency depreciation (or appreciation) on real interest costs is almost certain to be quite a bit less than the corresponding impact on nominal interest rates.

In addition to the impact of *expected* exchange-rate movements, the currency-related interest differential (both nominal and real) may be affected by exchange-rate *risk*. The nature of this risk should be considered from the viewpoint of an American owner of Canadian government bonds, since it is the foreign portfolio investor (and usually the U.S. investor) who is the residual holder of Canadian debt issues, both those issued in Canadian currency and those issued in American currency.[12] In other words, the currency-related differential, whether calculated in nominal or real terms, must reflect the relative risks to the U.S. investor of holding Canadian-dollar-denominated versus U.S.-dollar-demoninated assets. It is useful to note that this risk comparison differs depending on whether the calculation is made in nominal or real terms. In nominal values, the U.S.-dollar denominated bond is clearly less risky to the U.S. investor, since exchange-rate fluctuations have no impact on the bond's effective, U.S. dollar yield-to-maturity. Canadian-dollar bonds have to carry an interest rate that not only reflects an equivalent expected yield (inclusive of anticipated exchange rate appreciation or depreciation), but also includes a premium to compensate for the risk of unforeseen exchange rate movements.

However, the picture is less clear (at least in principle) when risks are considered from the viewpoint of unexpected shifts in the real purchasing power of bond yields. The U.S.-dollar bond is no longer automatically a less risky asset, since its real yield will be affected by unanticipated shifts in U.S. inflation rates. On the other hand, the real yield on Canadian-dollar denominated bonds is influenced by both exchange-rate movements and American inflation rates. If these two variables moved completely independently of one another, then clearly the Canadian-dollar bond would remain more risky than the U.S.-dollar bond. However, if unexpected appreciation (depreciation) of the exchange-rate value of the Canadian dollar is associated wtith unanticipated increases (decreases) in the U.S. domestic price level, then it is possible that the Canadian-dollar bond will be less risky than its U.S.-dollar equivalent. For example, if purchasing-power-parity kept the real exchange constant at all times, and if the Canadian inflation rate were very steady and predictable, then any fluctuations in U.S. prices would be virtually completely offset by induced exchange-rate movements. A Canadian-dollar bond would offer the U.S. investor a kind of inflation-indexed asset, and, therefore, could be sold at a lower expected yield than its U.S.-dollar analogue.

In practice, such conditions are unlikely to occur. Real exchange rates do fluctuate, and Canadian inflation rates are probably at least as volatile as American inflation rates. Therefore, Canadian-dollar bonds will probably have to incorporate an (exchange-rate) risk premium in comparison with U.S.-dollar bonds. The magnitude of this premium will depend on the perceived variance of the exchange rate, the degree of investor risk aversion, and the extent to which this risk is diversifiable. Since Canadian government bonds constitute a very small fraction of total outstanding bonds and other portfolio assets held in the United States, it seems likely that diversification would assure that much of the unique exchange-rate risk would have no impact on the interest differential. Only to the extent that unanticipated exchange-rate movements were correlated with fluctuations in overall portfolio returns would the market dictate a positive risk premium. This reasoning also implies that variations in the relative mix of Canadian-dollar and U.S.-dollar federal debt should have virtually no impact on the magnitude of the risk premium.

All of these arguments suggest that fiscal (and monetary) policy changes will affect the currency-related interest differential only if these actions create expectations about future differential movements in Canadian/American inflation rates and/or real exchange rates, or alter the (non-diversifiable) risk associated with unanticipated future variations in these factors. It is worth emphasizing that the interest differential responds to *future* exchange-rate *movements*, not to the current exchange-rate value. This circumstance has important implications. For example, a matter of recent, and recurring, debate in Canada has been the question of whether or not it would be a wise economic strategy to seek a (temporarily) lower domestic interest rate accompanied by a depreciated value of the Canadian dollar. The previous conclusion implies that the very nature of this debate is erroneous. An immediate depreciation of the dollar is consistent with lower interest rates only if the dollar's value is expected to rebound and appreciate again in the future; domestic interest rates are related to expected future changes in the exchange value, not to current levels.[13]

In general, fiscal policy can create upward pressure on the currency-related interest differential in three different ways. First, it can raise the nominal interest differential if it increases the expected future inflation rate, perhaps because greater deficit financing strengthens the belief that the monetary authorities will accelerate the expansion of the domestic money supply. Of course, if nominal interest rates rise because of higher expected inflation, then there is no change in real interest rates. To the extent that investment is constrained by real rather than nominal interest costs, there will be no resulting crowding-out effect. Second, expansionary fiscal policy may cause the real exchange rate to temporarily appreciate above its equilibrium value. During the period in which the real exchange rate depreciated back toward equilibrium, domestic interest rates would lie above foreign interest rates. Third, a fiscal stimulus could actually decrease the equilibrium real exchange rate. Once again, as the actual rate depreciated toward the new equilibrium, a positive gap between domestic and foreign interest rates would occur. In both these latter cases, real as well as nominal interest rates would rise.[14]

In short, the currency-related interest differential does, in principle, provide an avenue through which bond-financed fiscal expansion can crowd out domestic investment. Nevertheless, the practical importance of this effect can be questioned on at least two grounds. First, fiscal deficits are unlikely to lead to higher expected inflation if the deficits are largely self-eliminating and/or illusory - that is, if they reflect cyclically induced revenue/expenditure effects and/or inflation-related measurement errors. Hopefully, market expectations will be formulated on this basis.[15] There is, in any case, little empirical evidence in Canada of any connection between the size of the current fiscal deficit and the future growth rates of either the money supply or aggregate prices.[16]

Second, although fiscal policy may induce both short-term and enduring movements in the real exchange rate, the empirical effect of these movements on the long-term interest-rate gap is likely to be small. For example, consider two twenty-year Canadian government bonds, one issued in Canadian dollars and the other in U.S. dollars. Assume that both carry the same initial coupon rate. Now, in order to open up just a 1 per cent gap in the respective yields to maturity, it is necessary that the real exchange rate be expected to depreciate by an equivalent of 1 per cent per year compounded. Over the twenty-year maturity period, this represents a cumulative 22 per cent deterioration in Canada's terms of trade with the United States. Such a movement is completely unprecedented in Canadian history. In short, expected movements in the real exchange rate probably cause significantly less than a 1 per cent swing in interest rates, and the fiscally-induced component of such movements is undoubtedly smaller still. The necessary corollary is that any substantial change in the two yields amost certainly reflects corresponding shifts in expected Canadian versus American inflation rates.

Unfortunately, exploration of the actual empirical evidence on these issues is difficult because there is no readily accessible data on i^*_{CG}, the maturity yield of long-term Canadian bonds issued in U.S. dollars. Data eventually were obtained for the rather limited time period of 1978-82.[17] However, for reasons that it is hoped will become clear, analysis of these data is delayed until after the discussion of the third interest differential, the sovereign-risk premium.

The sovereign-risk premium

The differential $i^*_{CG} - i^*_{USG}$ in equations (1) and (2) represents essentially two factors. First, the market for Canadian government securities is thinner than that for U.S. Treasury bonds, so the transactions costs of dealing in the former are larger than those of dealing in the latter. This cost difference is relatively small and is unlikely to be affected at all by Canadian fiscal policy changes. Second, the interest spread represents the differential (to the U.S. investor) in the risk of default between the two securities. Historically, both American and Canadian government bonds have been considered extremely safe financial assets, with U.S. Treasury bonds evaluated as only slightly more 'riskless' than their Canadian counterparts. In theory, however, this channel of differential sovereign risk represents an important way in which Canadian fiscal policy could cause upward pressure on (both real and nominal) domestic interest rates. For if international credit markets consider the magnitude of bond-financed fiscal deficits to be inappropriately large, then the sovereign-risk premium will rise, with corresponding upward pressure on Canadian corporate borrowing rates, other things being equal.[18]

Ultimately, the question is an empirical one. Have the burgeoning Canadian deficits of the last few years and/or the prospect of even larger deficits in the immediate future caused an increase in the sovereign-risk premium? Figure 4 provides rather impressive evidence on this issue for the period 1978-82. The Canadian government rate, i^*_{CG}, represents the average yield to maturity on 9½ per cent bonds maturing in 1994. The

U.S. government rate, i^*_{USG}, is the average yield on long-term Treasury bonds. The two interest rates remain very close together as they move, with the Canadian rate averaging about 1 percentage point higher than its U.S. counterpart. Actually, the correspondence between the two borrowing costs is probably even closer than these data show, since the two series are not matched exactly for either coupon rate or maturity period.[19]

In any case, the message of Figure 4 is quite clear: there is absolutely no indication of any recent increase in the sovereign-risk premium, despite the ballooning deficits of the Canadian federal government.

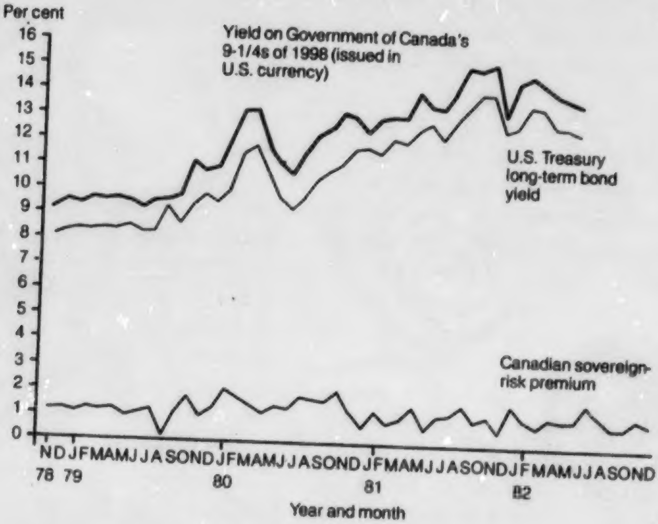
It is perhaps of some interest to ask whether, in principle, deficit spending can trigger an increase in the sovereign-risk premium. In fact, there are at least two questions involved. First, there is the existence issue - are there major international variations in sovereign-risk premiums? Even a very casual survey of the evidence reveals that quite significant variations occur. For example, consider the following sample of U.S.-dollar bond yields of different countries as given by trades on the New York Bond Exchange:[20]

Issuer	Coupon rate and maturity date	Yield to maturity
U.S. Treasury	9s of 1994	10.3
Australia	9 1/8s of 1996	11.3
Sweden	9s of 1997	13.1
Mexico	8 1/8s of 1997	18.1

The Australian premium is about the same as the Canadian. Swedish bonds, however, carry a risk premium of more than double this amount. Almost certainly, this higher premium reflects market concern over Sweden's growing public and international debt. Finally, Mexican bonds carry a very large premium of over 7½ percentage points. Clearly, the market considers Mexican default risk to be a major worry.[21]

The second question, or rather set of questions, has to do with the determinants and dynamics of these sovereign-risk premia. What indicators does the market use to help assess default risk? How do these premia vary over time, and, in particular, is the variation relatively gradual or can the premia shift markedly in a short while? If the determinants are uncertain or highly variable and/or the premia respond in a very non-linear fashion, then the current level of the risk premium may give only a weak indication as to whether the present direction of fiscal policy could lead to future upward pressure on interest rates. There is substantial

Figure 4
The Canadian sovereign-risk premium, 1978-82



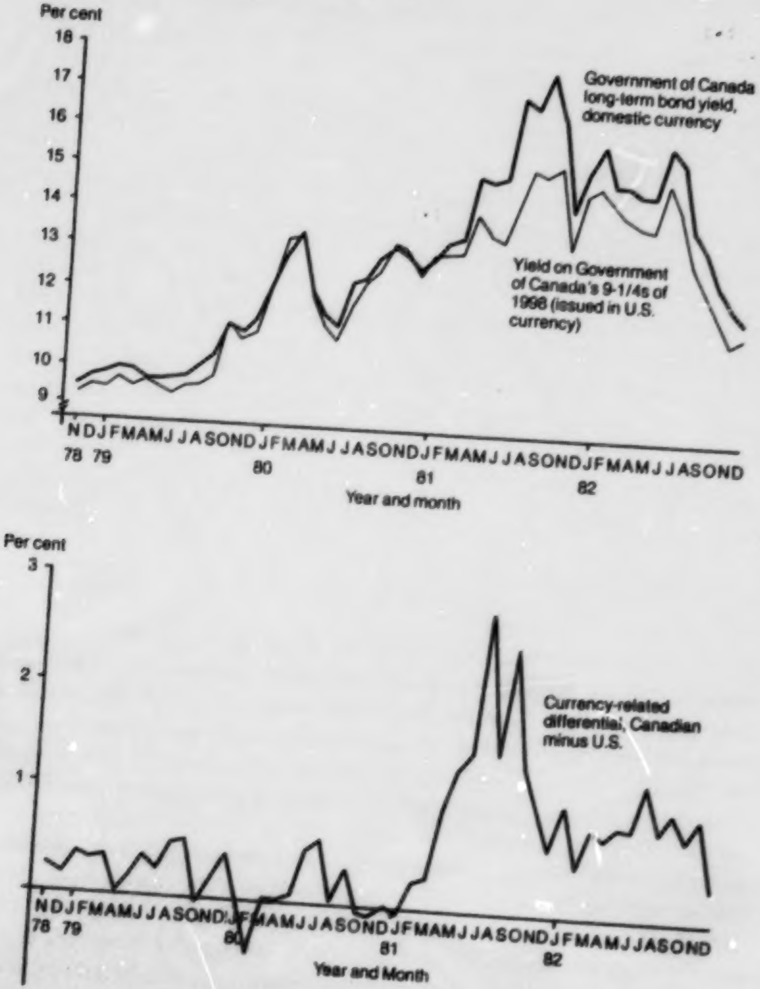
SOURCES: Wood Gundy, Ltd.; CANSIM.

scope for careful work in this area, although for the time being the empirical record strongly indicates that there is little reason to be concerned about induced changes in the Canadian sovereign-risk premium.[22]

Empirical evidence on the currency-related interest differential

Because of the limited number of observations on i^{*}_{CG}, the currency-related differential ($i_{CG} - i^{*}_{CG}$) can be calculated only for the years 1978-82. Figure 5 displays this information. As can be seen, the currency-related differential is quite a bit more volatile then either the corporate-risk or sovereign-risk premia. Even over this relatively short period of time the differential ranges as high as 2½ percentage points, while on the low side it is actually negative in several months. While still small in comparison with the overall movement in the domestic government

Figure 5
The currency-related differential, 1978-82



SOURCES: Wood Gundy, Ltd.; CANSIM.

bond yield (which ranges from 9½ to 17 per cent), these fluctuations are nonetheless quite pronounced. Most of the volatility occurred during 1981, when the differential first rose from about 0 in the winter of 1980-1 to 2½ percentage points in the summer of 1981. By the following winter it had dropped down to about 1 percentage point, and most recently it has fallen to well under 50 basis points.

Analysis of the determinants of the currency-related differential suggests that any substantial variation in the differential could probably be traced to expectations regarding future exchange-rate movements, expectations based upon anticipated (long-term) differences in Canadian and American inflation rates. Although this thesis cannot be proved, it does offer a consistent explanation of the 1981-2 experience. During 1981, Canadian inflation surged well above American rates of price increase. Furthermore, there were growing indications that this higher inflation might be more than a temporary phenomenon, since the gap between Canadian and American wage increases was even larger than the difference in inflation rates. It is not surprising that market participants reacted strongly to these circumstances, especially since it was not immediately clear what the response of the Bank of Canada would be. From the end of 1980 through the first quarter of 1981, the narrowly defined money stock, M1, was at or above the upper bound of its target growth range. Only in the second half of 1981 was the extent of monetary policy restrictiveness revealed, and this Bank of Canada stance may have led to the subsequent narrowing of the interest gap during the second half of 1981. The remaining differential of 1 percentage point may have reflected residual concern over the stubbornness with which Canadian wage and price increases resisted the restraining influence of rapidly weakening aggregate demand conditions. Only during 1983 has it become clear that domestic inflation rates are finally falling toward U.S. levels. The further drop of the differential to a more normal, presumably risk-related, level is almost certainly not a coincidence.

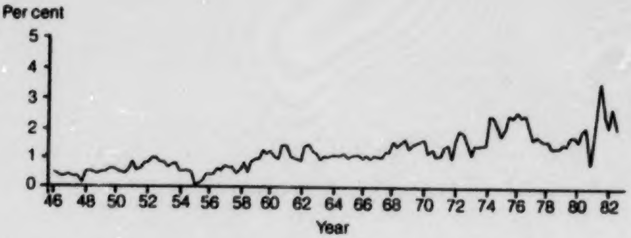
Further evidence of the importance of inflationary expectations to the determination of the currency-related differential can be obtained indirectly by observing the spread between domestic Canadian and American government bond yields, $i_{CG} - i^{*}_{USG}$. This interest gap is just the sum of the currency-related differential and the sovereign-risk premium. Since both a priori reasoning and empirical evidence suggest that the latter is a relatively steady number, any major variations in Canadian/U.S. bond yields are probably caused by exchange-rate effects.

The time series for these bond yields, displayed in Figure 6, reveals two interesting facts. First, the most steady period for the differential bond yield was 1963-7, a period encompassing most of the Canadian fixed exchange-rate experience. Of course, if market participants were completely confident that a fixed Canadian/American exchange rate would be maintained indefinitely, then there would be no currency-related differential. Variation in domestic government bond yields would be a result of changes in the sovereign-risk premium alone. Perhaps this was roughly true of the 1963-7 period. In any case, the exchange crisis of 1968 seems to have ushered in a new era of interest-rate volatility, a volatility that intensified under the floating exchange-rate system of the 1970s and 1980s.

Second, there have been two periods in which the government bond differential reached 2½ percentage points, 1974-6 and 1981-2. It has already been argued that the latter experience reflected fears that Canadian inflation would exceed U.S. rates of price increase, and roughly the same argument can be made for 1974-6. Principally because of a much more restrictive central bank policy, U.S. inflation rates were substantially below Canadian rates throughout the middle 1970s. For example, the GNE deflator rose in Canada by a cumulative 39 per cent during this three year span; the corresponding U.S. increase was 26 per cent. In essence, market participants inferred from this differential price behaviour that there would be a substantial future depreciation of the Canadian dollar (which during most of this period was trading at or above par). This expectation was presumably based in part on the continued discrepancy between the two inflation rates and in part on the belief that the real value of the Canadian dollar was above its long-run level. Of course, the expectation was correct: in the nine years since 1974, the dollar has dropped by a total of about 20 per cent. Even over the life of a 10-20 year bond, this drop represents a significant annual loss in purchasing power.

In summary, the empirical evidence provides support for the previous analytical claim that most of the fluctuation between Canadian and American bond yields stems from differing expected inflation rates. This conclusion has two corollaries. First, there has been substantially less variation in the real than in the nominal differential between the two yields. Second, there is very little reason to believe that bond-financed fiscal deficits of the magnitude presently contemplated will exert any upward pressure on

Figure 6
Differential Canadian government minus U.S. government long-term bond yields, 1948-82



SOURCE: CANSIM.

domestic real interest costs. Indeed, unless fiscal policy triggers fears of accelerating inflation, there also should be no significant change in nominal interest rates.

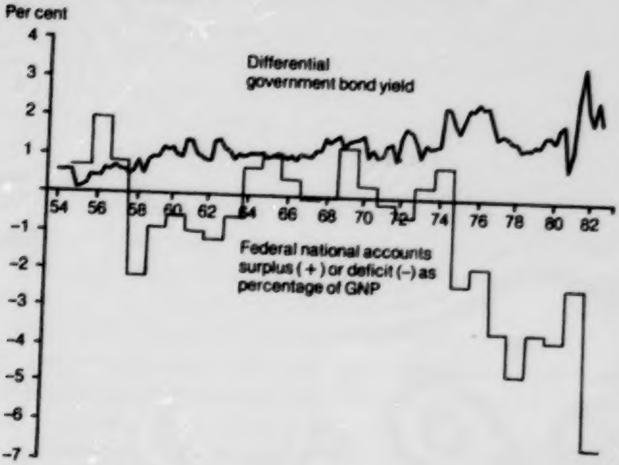
As a final check on this second set of implications, movements in the differential government bond yield were plotted against two measures of fiscal 'pressure' on bond markets. Figure 7 shows the interest differential against the actual federal deficit as a percentage of GNP. Figure 8 depicts the same differential against the total unmatured federal debt, again as a pecentage of GNP. As can be seen, there is absolutely no relationship between either fiscal measure and the interest-rate spread.

SHORT-TERM BORROWING COSTS

Corporate borrowing costs are affected by short-term as well as long-term interest rates. Indeed, during the last several years uncertainty about (long-term) inflation rates led to an increasing business reliance on financing arrangements with short-term maturities. Essentially the same international arbitrage conditions apply to the short-term money market as hold for the long-term bond market. In principle, relationships perfectly analogous to equations (1) and (2) could be defined for the short-term market, and indeed, that is the general procedure followed in this section.

However, the particular nature of the short-term money market suggested two modifications. First, no direct use was made of yield data on

Figure 7
Differential Canadian/American government bond yield versus Canadian federal budgetary balance as a percentage of GNP, 1954-82



SOURCES: CANSIM; Department of Finance *Economic Review*; author's estimate for 1982.

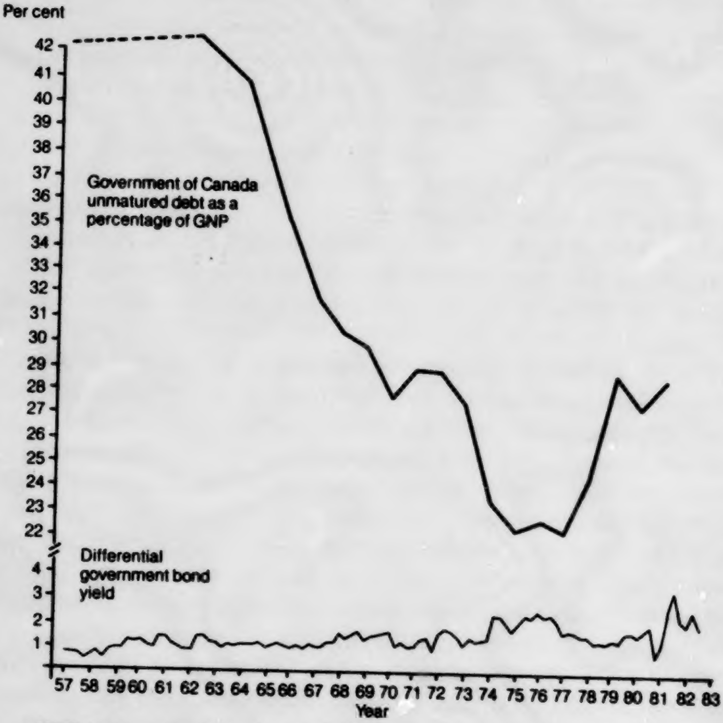
short-term government securities - chiefly because it was feared that various regulatory and institutional constraints on the holding of Canadian and American treasury bills (such as the secondary reserve requirements imposed on Canadian chartered banks) might prevent, at times, full market arbitrage of interest yields. Instead, the comparison focuses on the differential rates for Canadian and American prime corporate paper. Second, there exists an explicit forward market for hedging interest yields against the effects of short-run exchange-rate movements. This forward exchange-rate premium (or discount) can be explicitly incorporated as one of the explanatory components of short-term interest differentials.

In view of these considerations, the following two identities were specified:

$$i_{CCP} \equiv i^{*}_{USCP} + FWD + i_{GAP} \qquad (3)$$

$$r_{CCP} \equiv r^{*}_{USP} + [FWD - (\hat{R}_{CP} - \hat{R}_{USP})] + i_{GAP}, \qquad (4)$$

Figure 8
Differential Canadian/American bond yield versus Canadian federal debt as a percentage of GNP, 1957-82



NOTE: The government debt ratio is calculated as the debt outstanding as of March 31, 1983 divided by the GNP level of the previous year.

SOURCES: CANSIM; Department of Finance *Economic Review*.

where

i_{CCP} ≡ nominal interest rate on Canadian 90-day corporate paper, issued in Canadian dollars;

i^*_{USCP} ≡ nominal interest rate on U.S. 90-day corporate paper, issued in U.S. dollars;

$FWD \equiv$ 90-day forward premium (+) or discount (-) on the Canadian dollar cost of a U.S. dollar, expressed as a percentage of the current spot price of the U.S. dollar;

$i_{GAP} \equiv i_{CCP} - i^{*}_{USCP} - FWD \equiv$ the (exchange-rate) covered Canadian/American interest differential.

Equation (3) states that the short-term Canadian nominal interest rate can rice relative to its (assumedly exogenous) U.S. counterpart only to the extent that either the forward premium or the covered differential rises. Equation (4) implies that Canadian and American real interest rates diverge only when the forward premium is not equal to the difference between the two inflation rates or when there is a non-zero covered differential.

First consider the possible determinants of the covered differential. As exchange-rate movements have no impact on this interest gap, it is quite analogous to the first and third terms in equations (1) and (2). The covered differential could increase, for example, if Canadian corporate default risk rose relative to U.S. default risk. Or changes in taxation rules could affect the covered interest gap. Finally, shifts in relative transaction costs could change the differential. Under normal circumstances, none of these possibilities are likely to be especially important, and so the covered differential should be relatively small. It is at least possible, though, that a significant Canadian economic slowdown, relative to the U.S., could raise Canadian default risk and drive up the differential. To the extent that this occurred, there again could be opportunity for a counter-cyclical fiscal stimulus to create downward movement in Canadian interest rates.

Shifts in the forward premium will occur as a result of changes in the probability distribution of the Canadian/American exchange rate. In essence, the forward premium term is virtually identical to the second term of equations (1) and (2). The only difference is that since the markets for exchange-rate variation on the one hand and Canadian financial assets on the other are 'unbundled' in the money market, it might be expected that these short-term markets would work even more efficiently than the capital markets. In any case, the basic determinants of differential interest movements are the same in both cases. In particular, the forward premium reflects a combination of the expected (short-run) depreciation/appreciation of the Canadian dollar and a further increment to compensate for the risk of unanticipated fluctuations in the Canadian/U.S.-dollar exchange rates. It is unlikely that this latter risk premium will be very large, or particularly variable. As previous reasoning indicates, portfolio diversification of Canadian corporate-debt issues across North America should leave any specific U.S. creditor with very little unique exchange-rate risk. Therefore, the market should require compensation only for the non-diversifiable component of this risk.

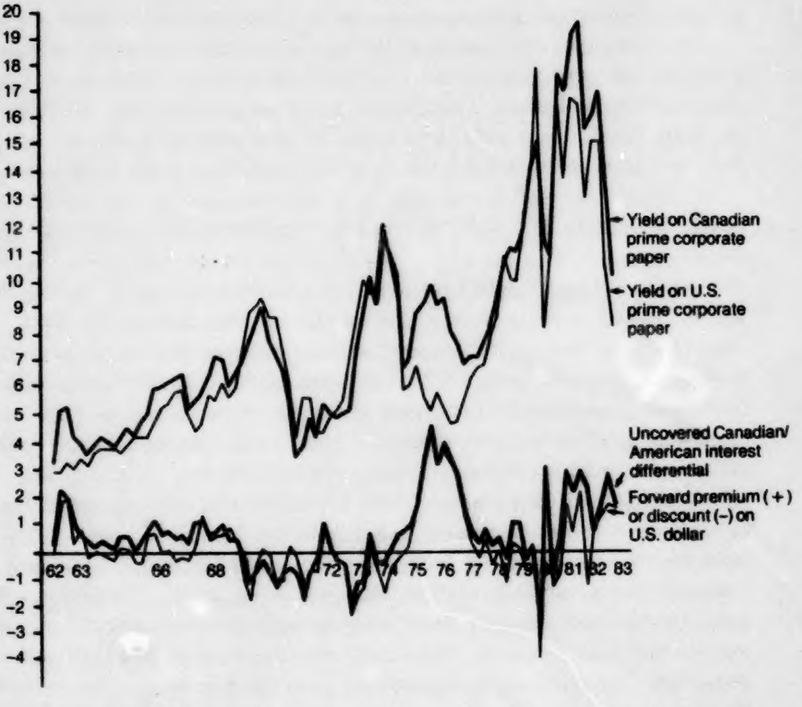
Expected exchange-rate movements, however, can create a relatively large positive or negative forward premium. Again it is useful to make a distinction between anticipated exchange-rate changes that simply reflect differential expected Canadian/American inflation rates and changes that represent movements in the real exchange rate. As equations (3) and (4) indicate, the former, inflation-induced factor changes nominal but not real, domestic interest rates. An increase (decrease) in real short-term rates, relative to U.S. levels, can occur only when there is an anticipated depreciation (appreciation) of the real exchange rate. It was argued above, with respect to long-term rates, that most expected exchange-rate movements are likely to reflect the purchasing-power-parity influences generated by differential anticipated inflation rates. This conclusion was based on the argument that over, say, a twenty-year time span even a relatively large shift in the terms of trade can be accomplished by a relatively small annual percentage change in the (real) exchange rate. No such easy claim can be made with respect to short-term interest movements: any substantial anticipated short-run movements in real exchange rates will have significant effects upon the corresponding interest-rate differential. Of course, it can be argued that over short periods equilibrium real exchange rates are unlikely to alter, at least to any great extent, so the interest-rate effect will remain small. This is probably true, as far as it goes. But even if anticipated shifts in the equilibrium exchange rate are uniformly small, fairly substantial deviations from this equilibrium rate definitely can occur - for example, as a result of temporary differences between Canadian and American inflation rates that have not been fully reflected in offsetting (nominal) exchange rate movements, or because of agriculture, energy, or other commodity price shocks that temporarily shift the terms of trade.[23] If the market expects a return toward equilibrium in the short run, then there will be an anticipated exchange-rate movement and a corresponding effect on real short-term interest rates.

The possible influence of fiscal policy on all this is potentially complex. As indicated previously, rather simple variations on the standard Fleming-Mundell model can generate fiscal-policy effects on real exchange rates. For example, any impact on (real) short-term interest rates as a result of a temporary fiscal stimulus would almost certainly have to occur by causing the Canadian dollar value to rise above its equilibrium level, creating expectations of future exchange-rate depreciation. The magnitude of the resulting effect on short-term interest rates would depend on a variety of factors, including the size of the initial appreciation and the time horizon over which readjustment was expected to occur.

It is useful at this point to turn to the empirical evidence. Figure 9 gives the Canadian and American average interest rates paid on 90-day prime corporate paper for the period 1962-82. Also shown is the corresponding interest differential plotted against the forward premium or discount on the U.S. dollar. There are two general points worth making about these data. First, as with the long-term interest rate series, movements in short-term Canadian rates in general very closely track the U.S. figures. This is true not only with respect to the general two-decade pattern; it also holds for many of the short-lived interest-rate variations. Indeed, over most of the two decades, the Canadian rate has been within about 1 percentage point of its U.S. counterpart. Second, when deviations between the two rates do occur, they are almost completely explained by movements in the forward premium. This would suggest that all factors (differential default risk, transaction costs, etc.) are of little importance. (However, this conclusion must be tempered somewhat by noting that the data are not well-suited for revealing either the existence of or changes in any default premium, since only prime corporate paper is included in the sample.)

Now consider the two major periods in which Canadian and American money-market rates diverged, 1975-7 and 1981-2. These are virtually the same periods in which Canadian government bond rates exceeded U.S. bond rates by the largest amounts. In other words, both the money and capital markets indicated that the Canadian dollar was expected to depreciate with respect to the U.S. dollar during these years. As was argued above, it is very likely that much of the bond-yield divergence can be explained by differences between expected U.S. and Canadian inflation rates. This is probably true for the money market also.

Figure 9
Canadian and U.S. interest rates on 90-day prime corporate paper versus the forward exchange rate premium on the U.S. Dollar, 1962-82



SOURCE: CANSIM.

However, there is one interesting variation between the experiences of the short-term and long-term markets. In the bond market, the yield spread was about the same in the two periods, while the interest differential for 90-day paper was much greater in both absolute and percentage terms in 1975-7 than it was in 1981-2. During 1976, in fact, the money-market spread averaged close to 4 per cent, since Canadian rates were almost double U.S. rates. While it is hazardous to make behavioural inferences on the basis of such casual empirical evidence, it is nonetheless interesting to note that the discrepancy in experience is consistent with the previous argument that anticipated real exchange-rate movements are likely to be more important in explaining short-term than long-term yield differentials. Therefore, a portion of the short-term interest differential in 1975-7 probably represented a rise in Canadian real interest rates.

In summary, examination of the short-term interest rate experience generally supports the previous conclusion that (real) Canadian interest rates cannot deviate by very much or for very long from U.S. rates. However, there is probably more scope for real interest rate variation in the short-term money market than there is in the long-term bond market.

OTHER CHANNELS FOR FISCAL POLICY EFFECTS ON INVESTMENT

The previous discussion has assumed that a (bond-financed) fiscal stimulus alters domestic investment expenditures only to the extent that it produces some change in corporate borrowing costs. Although this is probably the most important, and certainly the most discussed, channel through which investment crowding-out (or crowding-in) can occur, it is not the only one. The present section discusses - in an admittedly rudimentary fashion - a number of other possible methods of influence.

Even if fiscal policy actions have no impact on borrowing costs, they may affect the cost of equity financing by altering either the expected value or the variance in the market return on investment. There are a number of ways in which such an alteration could occur. As has already been mentioned, if a specific fiscal stimulus acts in a truly counter-cyclical way on aggregate demand, then the recessionary drop in output will be moderated, bringing a corresponding improvement in investment return. More generally, if fiscal policy usually acts to dampen cyclical fluctuations, and the market perceives this to be the case, then the variance of investment returns will be reduced, a result that effectively implies a lowering of equity financing costs.

Two issues are involved here. The first is whether discretionary fiscal policy can and will be (output) stabilizing in its influence. The second question, closely related to the first, is how market participants perceive this fiscal policy impact. For example, if individuals are pessimistic about the effect of fiscal policy initiatives, there may be an adverse impact on investment even if these expectations are wrong and fiscal policy is indeed operating in a counter-cyclical fashion.

There is heated debate among economists on both these issues. At the risk of oversimplification, a middle or consensus opinion might be summarized as follows. Although efforts to 'fine tune' aggregate demand run great dangers of either immediately backfiring or creating cumulative future instabilities, there is scope for activist fiscal and monetary policy to offset or at least ameliorate strong and sustained economic fluctuations. Furthermore, if prudent stabilization policy is followed, it is most unlikely that private sector individuals will misinterpret these actions. Misjudgments may be made about the impact of particular intervention episodes, but systematic errors will almost certainly be avoided.

These issues relate to the more general question of business confidence. Fiscal actions that strengthen private-sector belief in the appropriateness and consistency of government policy-setting, and that improve overall macroeconomic performance, are likely to encourage a high level of business investment. And, of course, the opposite is also true.

A second way that fiscal policy could affect investment is through the tax system. Fiscal initiatives that either raise after-tax returns on investment (e.g., accelerated depreciation allowances, investment tax credits, etc.) or lower the after-tax cost of borrowing (e.g., interest subsidization or loan guarantee provisions) could provide a significant investment stimulus. Indeed, many of the current advocates of fiscal stimulus argue for specific fiscal measures that would encourage investment expenditures.

Finally, in addition to any economy-wide effects it may have on capital formation, fiscal policy may change the mix of investment expenditures. This could occur either because of the direct nature of the fiscal stimulus (e.g., interest subsidies for housing construction but not for corporate fixed investment) or because of the indirect impact of the initiative on relative prices or relative demand. For example, the fiscal stimulus may alter real exchange rates or domestic energy prices.

Any attempt to estimate the possible magnitude - or even the direction - of the net impact of these different fiscal influences on demand is far beyond the scope of the present paper. In any case, such an estimation would depend on the exact nature of the fiscal actions taken. Two conclusions only will be emphasized. First, it is quite possible for a (bond-financed) fiscal stimulus to lead to an increased level of domestic investment. Second, the nature of the investment effects is far broader than the simple idea of investment crowding-out through higher interest rates.

THE CROWDING-OUT OF NET EXPORTS

The principal focus of this paper is on the effect of Canadian fiscal policy on investment. The argument has been made that because Canada is a small, open economy functioning in an integrated world capital market, there should be little, if any, investment crowding-out, at least through the usual interest-rate channel. However, the very openness of the economy, which precludes any significant interest-rate squeeze on investment, also creates the strong possibility that fiscal stimulation will crowd out another component of aggregate expenditures: net exports. An increase in government expenditures (or a decrease in taxes) can put upward pressure on the Canadian exchange rate (because of induced capital inflows stemming from the higher financing needs), and the resulting appreciation will increase Canadian imports and decrease Canadian exports. In the Fleming-Mundell model, the drop in net exports completely offsets the rise in the government deficit - i.e., there is 100 per cent crowding-out through the foreign trade sector. For more complex models, there will generally be less than complete crowding-out. Nonetheless, the potential exists for a major decrease in net exports if fiscal policy causes a significant exchange-rate appreciation.

All of this stresses the importance of the monetary policy decisions made during the time of the fiscal stimulus. For example, if monetary policy is set with the goal of preventing, or at least moderating, any changes in the exchange rate, then the adverse effects on net exports will be reduced. In the limit, if expansionary monetary policy is used to prevent any exchange rate appreciation, then there will be no crowding-out. What the actual response of the Bank of Canada would be under the present circumstances is another of those debatable questions. It is certainly clear that, for the last couple of years, exchange-rate considerations have been an important determinant of Bank of Canada policy. However, both the Bank's statements and its actions have largely reflected concern about the effects of too steep and/or too rapid a fall in the value of the exchange rate. Excessive depreciation has been seen as raising the domestic cost of imports and import-competing goods, and hence accentuating the inflation-adjustment problem that has been the Bank's principal focus since 1976. Whether the Bank would resist any significant currency appreciation is much more of an open question. Bank officials have indicated that they do not have a specific exchange-rate value, or even a range of values, that they consider appropriate and would be willing to defend. On the other hand, it is hard to believe that the Bank would sit back idly and watch the dollar appreciate to, say, 90 cents U.S. Effectively, therefore, Canada may well have a kind of 'wobbly peg' exchange-rate system.

If the Bank of Canada did prevent any substantial movement in the exchange rate, it would in the long run lose the independent power to control the domestic money supply. Some observers might argue that this has already occurred, and is reflected in the November 1982 decision of the Bank to suspend the setting and use of explicit M1 targets. The present writer, however, accepts the official explanation for this action (as a response to a short-run instability in the demand for money function) and believes that the Bank's principal focus remains on the reduction of Canadian inflation through continued monetary restraint. Pegging the exchange rate, therefore, would represent a significant departure for Bank policy, since in the longer term such an action would essentially set the Canadian inflation rate equal to the U.S. rate and hence pass the problem of inflation control into the hands of the U.S. Federal Reserve Board. Of course, with the current year-over-year American inflation rate running at less than 4 per cent, such a prospect may be viewed without much alarm. Indeed, a substantial economic case can be made that, given the pervasive interconnections between the economies of the two countries, efforts to run a substantially different Canadian monetary policy may be too costly to be worthwhile. On the other hand, even a casual glance at the swings in Federal Reserve Board actions during the last decade would suggest that it would at least be desirable to be able to insulate ourselves from some of the effects of these policy shifts. Whether what is desirable is also possible is still another subject for debate.

In any case, the fundamental point of this section remains true. There is a potential fiscal crowding-out problem affecting net exports, rather than investment. Therefore, the actual demand effect of any fiscal policy initiative will depend to a significant extent on the nature of the coincident monetary policy.

CONCLUSIONS

The basic points of the present paper stem from a fact well known to Canadians: there are advantages and disadvantages to being a small economy well integrated with a much larger neighbour. In this particular case, the disadvantage is that any increase in American interest rates will have a major and direct effect on Canadian borrowing costs, and hence on business investment. The advantage is that shifts in Canadian fiscal policy are unlikely to cause any significant additional upward pressure on domestic interest rates, particularly long-term rates. This is especially true if the fiscal stimulus is designed to be (and is perceived to be) self-eliminating as the economy recovers from its present severe recession. Indeed, there is some real chance that an anti-cyclical stimulus of this sort could actually lower real corporate borrowing costs by decreasing the risk of default. Consideration of other channels through which fiscal policy may affect investment obscures the situation somewhat. There is the possibility that a particular fiscal action could be intepreted as raising economic uncertainty and business risk in the future and hence could discourage investment even if there were no change in interest costs. However, it is also possible that investment stimulation could occur if business expected the fiscal stimulus to improve economic performance or if the specific fiscal initiatives favoured investment expenditures. The nature and determinants of business perceptions about economic policy are clearly issues of great importance here.

Despite these last few caveats, there is little doubt in the author's mind that a package of fiscal stimulation could be designed, even one of substantial size, that would have no adverse effect on domestic interest rates or investment. Furthermore, if the Bank of Canada cooperated by preventing any significant appreciation of the Canadian dollar, there should not be any major crowding-out of the net export sector. In short, it should be possible for the fiscal and monetary authorities to provide a large aggregate demand stimulus to the Canadian economy, if this were deemed desirable.

The question of desirability, unfortunately, is not an easy one to resolve. On one level the answer would appear obvious. The tragically high unemployment rate, the idled plant capacity, and the resulting lost output all scream for a concentrated program of economic stimulus. Yet there is a counter-argument, though it does not lie in apocalyptic visions of Canadians being drowned in a sea of government red ink. The real concern is whether the current economic recovery, strengthened and accelerated by government policy will leave the decade-long problem of persistent inflation unresolved and potentially resurgent. It must be recognized that while the past recession has been more severe in Canada than in the United States, Canadian inflation rates until recently have remained well above American levels. This divergence strongly suggests either that inflationary expectations are more deeply embedded in Canada or that our wage and price setting mechanisms are less sensitive to market conditions - or both. Most recently there have been encouraging signs that deceleration of wage and price increases is finally bringing Canadian inflation rates down toward the low U.S. levels. It would be a terrible disaster if a buoyant economic recovery reversed these favourable trends and led to still another inflationary burst and a subsequent, possibly even worse economic recession.

Judging the benefits and costs of economic stimulation is no easy task. Ultimately the choice between stimulus and restraint may have to rest upon the weighing of two risks, each of which concerns the formation of economic expectations. If restraint is maintained, there is the risk of being trapped in a downward spiral of fading business confidence, plummeting investment and output, individual and firm bankruptcies, and retaliatory trade restrictions. Our monetary and fiscal institutions (with considerable help, one hopes, from a recovering world economy) might well be able to pull the economy out of such a slide, but it would be nice not to have to put them to the test. On the other hand, a strong recovery could well trigger inflationary expectations - expectations that would presumably be even more painful to reverse in the future than they have been in the recent past.

Avoiding these twin risks - a downward spiral of plunging business and consumer confidence and an upward spiral of escalating price expectations - will require knowledge, skill, public debate over issues, and possibly a little luck. This is the really important issue in the deficit debate. It must be made the focus of both public and professional attention.

NOTES

1 However, crowding-out of net exports can take place, unless expansionary monetary policy prevents an appreciation of the exchange rate that could otherwise occur. This issue is discussed in more detail later in this paper.

2 This assumption is relaxed later in the paper when other channels whereby government deficit spending may affect business investment decisions are discussed briefly.

3 For a recent summary of some of these taxation issues, see the readings in Conklin, ed., 1982.

4 An example may clarify this point. Consider two hypothetical bonds, A and B, both carrying the same yield to maturity. Assume also that a particular investor considers that the chance of default is 3 per cent in the case of bond A and only 1 per cent in the case of bond B. At first glance, it may appear that bond B dominates bond A as an investment for this individual - i.e., that his holdings of bond A will be zero. However, this need not be the case if the investor is risk averse in the specific sense of being willing to accept a somewhat lower expected yield in order to minimize the chance of a catastrophic (default) loss. The investor may then choose to hold some of bond A if the chance of bond A default depends on very different (ideally, opposite) circumstances than the chance of bond B default. This might be the case, for example, if bond A were issued by a high energy-using company and bond B by an energy-producing company. By diversifying his holding between the two, the investor would raise the chance that some default would occur (and hence lower his expected yield), but he would minimize the chance that his whole bond investment would become worthless.

5 Or to hedge against some other income-reducing event - e.g., an increase in effective tax rates on interest income from government bonds.

6 One possible counter-argument would rest on the assumption that, rather than being widely disbursed, holdings of Canadian corporate or government bonds will be concentrated among the relatively small number of domestic and foreign traders (perhaps because of informational costs). In such circumstances relative supplies might impact on the differential yield. Such a possibility could be empirically tested.

7 Some responsiveness will remain because the expected discounted returns to bondholders will vary with the time pattern of default risk.

8 The results that Douglas Auld has presented to this conference suggest that, in Ontario at least, discretionary fiscal policy has had a counter-cyclical orientation. It should also be noted that the argument presented so far implicitly assumes that stabilizing aggregate demand fluctuations will also smooth aggregate output fluctuations. The advocates of the strong form rational expectations school would challenge this (e.g., Lucas 1972, 1973; Sargent and Wallace 1975).

9 The magnitude of the cyclical sensitivity is almost certainly understated by the data. The corporate bond index excludes any issue that drops below a BB rating. Also, the lower-rated bonds are much more cyclically variable than their higher-rated counterparts. Indeed, the market for lower-rated bonds thins substantially in economic downturns. I am indebted to David Adamo at McLeod, Young, Weir for these points. Roderick Macgillivray, Dominion Securities Ames, made similar comments to me.

10 The equivalency is not exact, since the terms of trade are usually calculated using export and import price indices rather than some

aggregate domestic price measure such as the GNE price deflators, and since terms-of-trade figures are usually given for all trade transactions - not just those with one other country. Both of these distinctions are ignored in the remainder of the paper.

11 Purchasing-power-parity is a reflection of goods-market arbitrage. In the sense used here, it implies that prices of similar commodities in the United States and Canada cannot experience continually different growth rates, when calculated in the same currency units. When generalized across all prices in the two economies, purchasing-power-parity implies that, over longer periods, any excess (shortfall) of the Canadian over (below) the American yearly inflation rate must be offset by an equal annual depreciation (appreciation) of the Canadian dollar. The relevance of the goods-market arbitrage condition is quite apparent for nearly homogeneous commodities such as agricultural, forestry, fishing, and mining products. But even for heterogeneous products such as manufactured goods it should be clear that continual increases in Canadian prices versus U.S. prices (valued in Canadian dollar terms) are unsustainable in the long term.

12 At the end of 1981, non-residents held $9 billion worth of Canadian government securities out of a total of $77 billion outstanding (excluding holdings of the Bank of Canada). Only $3.5 billion of the debt was payable in foreign currencies.

13 These conclusions have been derived with respect to long-term interest rates. However, it will become clear later in the paper that the same reasoning applies with respect to short-term rates.

14 The nature of the theoretically possible instances in which these two effects can occur depends upon the type of analytic model used. In the simple Fleming-Mundell model, neither effect can occur - because there is no dynamic mechanism for generating movements in exchange-rate expectations. However, other assumptions can yield different conclusions. For example, consider the impact of a stimulative fiscal policy that is known by everyone to be short-run (a temporary tax cut, for example). Even incorporating the remaining Fleming-Mundell assumptions (e.g., fixed prices, no asset accumulations), this situation can raise Canadian (real) interest rates by increasing the currency-related differential. Specifically, the capital inflows triggered by the increased financing needs will cause the spot exchange rate to appreciate. However, when the stimulus is abandoned, the exchange rate will return to its original value. Therefore, this expected depreciation will drive Canadian interest rates up by some (probably small) amount during the interim period.

Fiscal policy can also alter the equilibrium real exchange rate. Indeed, this will occur in the previous example if asset accumulations are incorporated into the analysis. During the stimulus period, the appreciated value of the Canadian dollar causes a decline in the current account balance of the Canadian balance of payments. This is offset by a corresponding capital inflow. In other words, Canada's net foreign indebtedness will rise, and therefore interest payments to service this debt will also rise. After the stimulus is removed, a higher trade surplus will be required, which means that the Canadian dollar will eventually have to depreciate below its original value to restore long-run equilibrium. As a result, the interest-rate effect will be somewhat greater and/or more prolonged than would be predicted if asset accumulation effects were ignored.

15 Nonetheless the possibility of systematic misperceptions of market participants does exist, especially during a transitional period.

16 Chart 5 in John Grant's 1983 paper provides some supporting evidence of this lack of correlation. This also was the conclusion of Crozier (1976a, 1976b, 1977), though see Pattison (1977), Richardson (1977), and Christofides (1977) for differing views.

17 Through the most helpful cooperation of John Grant at Wood Gundy.

18 Conceivably, other things may differ. In particular, there may be a (partially or fully) offsetting downward movement in the corporate premium, $i_{CC} - i_{CG}$, if the market decides that the government's fiscal problems imply little or nothing about the default risk of private Canadian borrowers. Because this line of inquiry is so hypothetical as to make even an economist uncomfortable, the author will leave further speculations about possible market behaviour to the interested reader.

19 Bonds with equal maturity periods but differing coupon rates can carry different maturity yields both because holding period yields will vary between the two and because capital gains on appreciation of principal are taxed at a lower rate than interest income. Differing maturity periods will cause variation in yields if the term structure is not flat. It should also be noted that the Canadian series is end-of-month data, while the American series is the average yield over the month.

20 As reported in the Wall Street Journal, 23 February 1982.

21 More recent data indicate that these fears may have lessened as the Mexican premium, though still large, dropped by about one half during the spring and summer of 1983, perhaps reflecting confidence in the IMF-imposed austerity program. Whether this confidence is well-founded remains to be seen.

22 To give some quick perspective - the ratio of external federal debt to total exports is probably about 20-25 times higher for Mexico than it is for Canada.

23 The question of whether such relative price movements cause short-run (disequilibrium) deviations from a long-run equilibrium or simply generate random fluctuations in the equilibrium rate itself is probably of interest only to the economic semanticist.

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Peter Anderson*

Professor Wirick has provided us with an interesting and thought-provoking analysis of a subject that must be a primary concern to policy-makers, the private sector, and academicians alike. The paper relies heavily on the Fleming-Mundell model, which assumes infinitely elastic capital flows and static expectations. While this model is an important theoretical construct, allowing the economist to analyze the myriad complicated relationships affecting the behaviour of a small, open economy in a partial equilibrium framework, the model's usefulness is limited in direct application to the real world. It is important for us to note the ways in which the Canadian and world economies differ from the model's assumptions and the degree to which these differences critically affect the author's conclusions. It would be a much easier task for our policymakers if in fact an infinitesimal increase in Canadian interest rates could bring in waves of foreign capital. It would also be wonderful if Mr. Lalonde could stimulate the economy back to full employment and not aggravate adverse inflationary and exchange-rate expectations.

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The problem is that the real world doesn't operate that way today and probably never did.

Professor Wirick's paper seems to completely miss the point that budgetary deficits in Canada appear to have a large structural component that will remain long after the recession is over. This is when the crowding-out will take place - when private sector borrowing requirements have revived and must compete with large government requirements for a limited suppply of net domestic saving. Professor Wirick attempts to allay our fears by assuring us that gaps between domestic saving and investment can be financed by virtually unlimited international capital flows. This is the familiar argument that Canadians never have to worry about capital availability because foreign saving will always be available - an assumption, I submit, that is highly unrealistic. In current circumstances, any major increase in our reliance on foreign saving would involve a major deterioration in our current account balance, significantly higher interest rates, lowered rates of capital formation, and an ultimate deterioration in productivity performance.

There is also the possibility that foreign saving might not give us all the capital we want, at least at prices that we are willing to pay. In recent testimony before Congress, U.S. Federal Reserve Chairman Paul Volcker repeatedly warned that a serious capital availability shortage could develop in the United States as private borrowing needs recover and collide with large structural deficits. President Reagan admitted in his budget presentation to Congress that the Treasury's borrowing needs in fiscal 1983-4 would consume 94 per cent of total net saving in the U.S. (in 1970, the figure was 26 per cent). This would leave very little left over for Canada.

Another weakness in the paper is that it completely ignores crowding-out that may be caused by an increase in inflation. To the extent that inflation causes government revenues to rise at the expense of private incomes, due to the incomplete indexing of the tax system, private investment may be crowded out in periods of accelerating prices.

Moreover, the analysis for the most part ignores the existence of monetary policy and assumes that fiscal policy can act completely independently. It is often the case, however, that central banks attempt to soften the collision between private sector and public sector borrowing demands by creating substantial amounts of additional credit.

Interest rates will not necessarily rise as a result of higher inflation, but crowding-out will nonetheless occur. Real incomes will be lower, and consequently the private sector will be crowded out by the public sector in the competition for real resources.

I found the paper to be somewhat longer than necessary. For example, it contains a needlessly drawn out narrative on the identity relating corporate rates to the corporate default risk, the currency differential, and the sovereign-risk premium.

If I were addressing the issue of crowding-out, I would focus on the spread between Canadian corporate bonds and government bonds and the level of Canadian government bonds. Professor Wirick spends too much time explaining why risk premia exist. The issue at hand is how they change in response to discretionary fiscal policy.

The discussion of portfolio diversification could easily be shortened. The author admits that diversification is only important in the unlikely event that the two bond risks are imperfectly correlated. I agree, and I feel that too much time is spent in discussing this issue.

I also consider the discussion of government default risk to be needlessly long. The point that activist stabilization policy could moderate corporate default fears is a good one, but this policy would produce downward pressure on risk premia only and would not necessarily produce lower absolute corporate interest rates. Corporate spreads could conceivably narrow, relative to government spreads, but I am not at all convinced that the actual level of corporate rates would decline as the author says they would do.

Professor Wirick's statement that in normal circumstances the corporate risk premium is unlikely to be large reflects his treatment of all corporate instruments as prime triple A credits. In reality, of course, crowding-out is most likely to affect the less creditworthy borrowers. I suggest that the author examine the corporate risk premium by quality rating. He would find that there are marked cyclical swings and that wide spreads open up between prime credits and lower-rated issues as the economy deteriorates. These spreads are likely inversely related to the counter-cyclical policy measures.

I am not happy with the discussion of the currency-related interest differential. It reintroduces the unrealistic Fleming-Mundell model, which produces the odd result that aggressive fiscal stimulation would strengthen the Canadian dollar. I believe that in present circumstances expectations would produce exactly the opposite effect.

Professor Wirick attempts to downplay the potential impact of a bond-financed program of fiscal expansion by claiming that the resulting deficits would be self-eliminating, or illusory. He states the hope that market expectations would be formulated on this basis. This is where I feel a few basic points need to be made.

First, we are supposed to be talking about discretionary fiscal actions, not just the cyclical growth of the deficit as a result of the recession. Professor Wirick does not recognize the difference between a structural and a cyclical deficit problem. I think the whole point of the discussion on deficits is that a large part of the deficit is no longer self-eliminating. If Professor Wirick could design a fiscal plan with a deficit that eliminated itself by the mid-1980s and convince Ottawa to adopt it, I would be much less concerned about this issue. Given the current fiscal policy setting, however, the current federal deficit will remain very large well after the recession ends.

The discussion of the sovereign risk premium completely ignores the existence of monetary policy. Spreads on U.S. pay Canadas and U.S. Treasury bonds have definitely moved as a result of discretionary monetary policy. Fiscal and monetary policy must not be treated as if they were independent of one another. Furthermore, the evidence of a wider spread would be found at a time of recovery in private sector credit demand rather than in the depth of a recession.

Finally, the last section which deals with the crowding-out of net exports, makes no sense to me. The author, using the Fleming-Mundell assumptions, implies that discretionary fiscal stimulus would raise the value of the Canadian dollar. As I said, I hold the opposite view. A $5 billion to $10 billion additional stimulus on top of the $29 billion initially estimated for fiscal 1983-4 would, I believe, produce strong expectations of a weaker

Canadian dollar and a need for the Bank of Canada to respond with higher rather than lower interest rates.

To wrap up, I do not believe that the paper supports the conclusion that, in current circumstances, larger Canadian government deficits would be unlikely to cause any significant additional upward pressure on interest rates, and that as a result, little crowding-out would be forthcoming.

Discussion

MODERATOR: If ever there was an example of the two solitudes, I think we've got it here. I am going to give Professor Wirick just a couple of minutes for rebuttal. Then we will go to questions from the floor.

R.G. WIRICK: First of all, I will agree about the rambling nature of the paper. I learned long ago that under time pressure it is much easier to write long than it is to write short. I hope that future revisions will tighten the paper up a bit.

On the other hand there's very little else that Peter Andersen said that I do agree with. Indeed, the basis for some of his arguments eludes me completely.

I went through the identities because they are identities. If you believe that there is going to be crowding-out through the interest-rate mechanism, you must specify a way in which those interest differentials widen. You cannot just wave your arms in the air, invoke some statement that we will not have enough domestic savings which will upset markets in some unknown way, and claim that domestic investment will be crowded out. You must identify specifically one or more of those interest components that is supposed to increase, and you have to say how this will occur. The point is a simple and obvious one, but, given the nature of some of Dr. Andersen's comments, perhaps it needs to be re-emphasized.

For example, Dr. Andersen accepts that 'activist stabilization policy could moderate corporate default fears,' thus narrowing corporate-government interest rate spreads. Indeed, he seems to argue that this impact might be even stronger than my data would suggest (since the cyclical sensitivity of lower-rated bonds is greater than the actual interest rate series used in my paper). Despite these admissions, he is 'not at all convinced that the actual level of corporate rates would decline.' Yet for Dr. Andersen to maintain such a conclusion he must believe that either the sovereign-risk or the currency-related differential will rise by at least as great an amount as the corporate-default premium will fall. Which does he expect to be the culprit? Why should such a rise occur? What evidence is there for such a position in the historical data? On all these points Dr. Andersen is silent.

Regarding another, though closely related issue, it is clearly quite true, as Dr. Andersen asserts, that the critical questions are how and why the three interest differentials change over time. Yet unless you discuss what determines these differentials in the first place, it's very difficult to talk about what is going to cause them to change. Consider, for example, the sovereign-risk premium. It's clearly true that if Canada runs an imprudent fiscal policy, the international financial markets will start demanding a very stiff risk premium. I think one focus of future work must be an effort to determine what signals the market provides when our fiscal policy starts to get us into danger. My paper gives a snapshot in time of the significant variation in sovereign-risk premia among four countries. Perhaps a more interesting question, which I only allude to in my paper, is what the dynamics of those premia have been. For example, take a case such as Sweden - or an even more extreme instance such as Mexico. Did the market gradually raise the risk premium to Mexico, or did it remain fairly steady for a long period of time and then shoot way up because of a new perception about world oil markets? If the latter alternative describes the case, then we must be especially careful in Canada and, if anything, err on the side of caution when we tap international markets. If we get into heavy debt, corporate or public, the international market might suddenly re-examine what's happening in Canada (or what it fears may happen through monetary or fiscal policy in the future) and abruptly demand a much bigger risk premium. We could then be in real trouble, trying to service a large debt at much higher real interest rates than we initially anticipated.

Let me turn to a final point. Dr. Andersen is skeptical about Canada's future access to capital markets, apparently quite apart from a concern about increases in the sovereign-risk premium. He cites testimony by Federal Reserve Chairman Paul Volcker that U.S. public and private borrowing needs could cause a 'capital availability shortage' in the future. Dr. Andersen concludes that there may be 'very little [capital] left over for Canada.'

I find this conclusion perplexing.

I am confident that Dr. Andersen realizes that the response of U.S. capital markets in such a situation would be to increase U.S. real interest rates. And this result would, of course, be completely consistent with my paper. Increased U.S. rates would cause a direct and immediate rise in Canadian rates, and as a result Canadian investment, as well as U.S. investment, would decline. What I am arguing in my paper is that differential changes in our own government's financing needs are not going to put a noticeable increment on top of the U.S. rate. In any case, international capital is not allocated like tickets to a football game - which may simply not be available if you get to the stadium late. Capital funds are distributed through changes in interest rates. If we are willing to pay the cost, we will get the funds.

PETER ANDERSEN: I would like to add two additional comments before the session is opened to questions from the floor. First, Professor Wirick's examination of historical interest rate spreads, while interesting, does not constitute sufficient evidence on which to base his conclusion. Prior to 1974, the federal deficit in Canada did in fact tend to be self-eliminating and did move towards surplus in recovery years. We must remember that chronic structural deficits have only developed since the mid-1970s and that private sector growth since then has been modest. It is, therefore, not surprising that Professor Wirick's historical analysis finds little evidence of crowding-out. However, the risk is definitely there for the mid-1980s, when we will need a strong spurt in private sector output and investment just in order to regain our previous standards of living. If deficits were still self-eliminating, then I would be much more at ease on this issue. However, it is generally accepted that large structural deficits will remain with us long after the recession ends.

Second, a brief word on inflationary expectations. Professor Wirick argues that if nominal interest rates are pushed up because of inflationary expectations associated with larger deficits, real interest rates don't in fact change and that investment spending won't be affected. This is an overly simplistic view of expectations. Larger deficits that destabilize bond market expectations are unlikely to have the same impact on the expectations of corporate management. The expectations of financial market participants (i.e., bond traders and investment managers) and corporate management are unlikely to be uniform, and they are based on different factors. Financial market participants tend to be much more sensitive to inflationary expectations, and higher nominal interest rates from this source could definitely mean an increase in real interest rates for corporations. The present situation is a good example. Currently, bond participants and corporate management show widely divergent expectations of inflation.

QUESTION: My question for Professor Wirick relates to the corporate differential shown in Figure 2. It declines to a very low level in the early sixties and then it increases. What is the explanation for this? Is the corporate differential really the measure of crowding-out, and if it is, is it related to the share of government in GNP, the ratio of government debt to income, or something else?

R.G. WIRICK: I don't know. I would like to explore some of this a lot more systematically that I have. On the basis of casual empiricism, the corporate premium appears to be related to economic cycles. You are quite right, particularly about the sixties. In my paper I talked about the high points for the premium, but look at the period, say, from '61 or '62 up to about '65 or '66. That was the old golden age that I sometimes talk about in my classes - when even economists were looked at with respect. We probably ill-deserved the respect then as much as we ill-deserve the disapprobation now. But it was a time when economic behaviour was relatively stable. Unemployment rates were low and falling during most of the decade. Inflation rates started to rise towards the end of the 1960s, but during most of the period they were low. I think it was this basic stability of economic circumstances that allowed the corporate sector to pay only a small extra risk premium above the government yield. In essence, there simply wasn't much risk of corporate default. So I would maintain that most of the pattern here is very definitely a cyclical one. If I were to try to test this in a formal sense I would use explanatory variables that were in essence cyclical variables - the gap between the actual and the natural unemployment rate, or other variables of that sort. To that extent I wouldn't expect to find much of a relationship with respect to fisca measures such as the ratio of government expenditures to GNP - unless i were in essence an indication that discretionary or automatic stabilizatio policy was being used to help ameliorate cyclical output swings.

QUESTION: Ron, the thing that stands out very strongly in your chart is the importance of uncertainty with respect to the inflation rate - in 1974-6 and again in 1981-2. I would like to ask both you and Peter if one can assume that it's not the deficit per se that affects the differential between the U.S. government bond rate and the Canadian government bond rate, both expressed in their own currencies. If it's not the deficit per se, but rather a perception of uncertainty with respect to the future rate of inflation, then under present circumstances of substantial economic slack in Canada, would either of you see much potential for a major change in uncertainty about inflation as a result of an increase in the deficit that was clearly temporary?

PETER ANDERSEN: I'm not so sure that an increase in the deficit is purely temporary. I think this is one of those big assumptions - arguing about structural deficits that are still there when the economy is moving into a recovery. I don't think you are going to see a 7 per cent or 6 per cent unemployment rate at any time within the next five years, and I think large structural deficits are going to compete for funds with the re-emerging needs of the private sector.

QUESTION: That may be, but let's just confine it to change in the deficit. Say there's a change in the deficit over the next year or two: what would be the marginal impact of that?

PETER ANDERSEN: All right. We are talking about a base figure now of at least $29 billion for the federal deficit in 1983-4, the year that begins April 1. If we have a $5 billion to $10 billion additional stimulus on top of that, I would expect inflationary expectations to remain very volatile, even though the capacity utilization level is at an all-time low.

R.G. WIRICK: I am quite concerned about inflationary expectations - indeed, that was the point I was trying to end with in my initial presentation. Perhaps I gave the wrong impression in my paper, Peter, because I was not arguing that we should undertake a fiscal stimulus. I remain quite uncertain and would like to have more discussion about it. What I was arguing is that it's quite feasible to undertake a fiscal stimulus and that such action would indeed stimulate aggregate demand overall. The question of whether a stimulus is desirable or not is quite another matter.

We don't know enough about how inflationary expectations are generated; we simply don't know enough. And I don't think any model builder, large scale, small scale, or intermediate, would really quarrel with that point. What we do know is this: that when inflationary expectations take off and become deeply embedded, they're very, very costly to roll back, and as a result I would suggest that there is a real danger of trying to stimulate the economy too fast or too far. Of course, we are a long way from any kind of measure of capacity output and the costs of being that far away are also very great, so I'm really on the horns of a dilemma here.

One final point with respect to inflationary expectations, as far as the narrow focus of this paper is concerned: if you increase inflationary expectations, you will raise Canadian nominal interest rates versus U.S. nominal interest rates, but you still haven't opened up a gap in real interest rates. And it's real interest rates, predominantly, that crowd out domestic investment, not nominal interest rates.

QUESTION: My question is for Dr. Andersen. I'm not sure I heard him correctly, but I thought he said at one point that he could foresee circumstances in which Canadian borrowers could not get the capital they needed on international markets, even at higher rates, whereas Professor Wirick said that if borrowers are prepared to pay the real rate demanded they can always get capital. I tend to lean to Professor Wirick's view and I find it difficult to understand Dr. Andersen's view.

PETER ANDERSEN: My point is that it is highly unrealistic to assume there is an infinitely elastic international capital flow available to Canada, and that if we increase interest rates by one or two basis points we can have all the foreign financing we require to finance a deficit of $35 billion to $40 billion at a time when the economy is expanding at a rate of 6 to 8 per cent.

COMMENT: I would say, that if Canadian borrowers, corporate or public, are prepared to pay the rate demanded on the foreign markets, they can always get as much as they want.

PETER ANDERSEN: My feeling is this: if there is an imbalance between domestic saving and domestic borrowing requirements, and if the United States is in a capital shortage position at that time, then it will take a significant increase in interest rates to attract the additional funds to Canada. Provinces with overly large deficits will face reduced credit ratings. Of course, funds will always be available at a price, but will the borrowers be willing to pay the price or will they cut back their spending plans?

COMMENT: Capital shortage means, presumably, higher rates.

PETER ANDERSEN: Capital shortage means a U.S. budgetary deficit that's taking up 88 to 94 per cent of total net savings in the United States at a time when private sector borrowing needs are recovering at a fairly high rate.

COMMENT: Which would drive U.S. rates up? If Canadians were willing to pay those rates, or those rates plus the premiums, then Canadians would get the capital they needed.

PETER ANDERSEN: I am saying that the alternative of foreign saving is not a guaranteed fact of life and that it would be pretty foolish to think we could rely on it at all times. Because fiscal deficits have taken a quantum leap only just recently and are generally expected to stay very large even after the recession ends, I am very worried that we are heading into new ground and into potential trouble.

QUESTION: I have one question for you, Ron, and it is this. The Fleming-Mundell model says that if we expand fiscal expenditure and create a larger deficit you do in fact get full crowing-out on your assumptions of elastic capital mobility. It happens to occur through the trade balance and not through investment savings, so if you were to stimulate in your world by fiscal expansion you would also have to stimulate your monetary expansion, and therein lies one of the dangers.

R.G. WIRICK: The Fleming-Mundell model, as Dr. Andersen pointed out, has a lot of unrealistic assumptions in it. What I am really trying to demonstrate in this paper is that the conclusion with respect to the investment effect is pretty much independent of those unrealistic assumptions but instead rests on the international arbitrage of returns on comparable financial assets. But you're obviously quite right. In that model, or indeed I think in virtually any more realistic variant, you are certainly going to get crowding-out of net export expenditures unless monetary policy is accomodating. What happens, basically, is that the capital inflows triggered by the financing needs of the fiscal stimulus can create an instantaneous exchange rate appreciation, which in turn cuts net export demand.

All of this, however, is dependent on the nature of monetary policy. The critical question is: what would the Bank of Canada do in such a circumstance? We have people here who can, and perhaps will, comment on this better than I can. It is clear that the Bank of Canada doesn't want the Canadian dollar to depreciate too much, because of its concern about subsequent effects on import costs and inflation. But it is not clear what the Bank would do if the exchange rate started appreciating. My guess is that under current economic circumstances it wouldn't let it appreciate too much, which in essence means (a) you would have monetary accommodation of any fiscal stimulus and (b) you wouldn't have much, if any, adverse effect on net exports. Whether such accomodation would create a resurgence of inflationary expectations is, again, a question for which I have no certain answer, but it is one that does cause me concern. John Bossons probably would respond that as long as the fiscal stimulus is temporary and as long as people can agree that there isn't any structural deficit, then there should not be any problem with inflationary expectations, since all we have is a temporary fiscal stimulus accompanied by temporary monetary stimulus. But I'm not entirely sure that the stimulus would be temporary, nor am I certain that Canadians in general would perceive it to be temporary.

Deficits and capital markets

John Grant*

It does not take much acquaintance with the financial press or with the business community generally to realize that government deficits, especially federal government deficits, are a bogey. There is a palpable protest, voiced in hundreds of different ways, that sings out loudly and clearly in many, if not most, market commentaries on government economic policy. Financial market participants appear to feel that government deficits represent a serious threat to the stability and productivity of the economy and the financial superstructure. Whatever may be the conclusions from learned analysis of structural versus cyclical components, inflation adjustments, distinctions between current expenditure and capital expenditure-related components, and distinctions between deficits at the federal level and those at provincial or municipal levels, these conclusions appear at first sight to be pretty much irrelevant to the instinctive distaste for deficits of whatever description.

We may be dealing with a partly irrational phenomenon. But there are good reasons in principle for concern about deficits. The first and, for capital markets, still the most important concern is related to inflation. Throughout history, government outlays in excess of what the taxpayer can be persuaded to finance have often been financed instead through the creation of money, money lent by bankers to the government. Whenever the supply of money has grown faster than society's ability to produce real goods and services, it has become the basis for an increase in the price level. In the past, such escapades were usually associated with wars, which exacerbated the inflationary consequences on the supply side because many of the able-bodied young peasants were pressed into military service, leaving the economy of the day even less capable than usual of expanding physical output in response to increases in monetary demand. Even after normal conditions had been restored, the price level might remain permanently higher, depending on the ratio of the money supply to the size of the physical economy.

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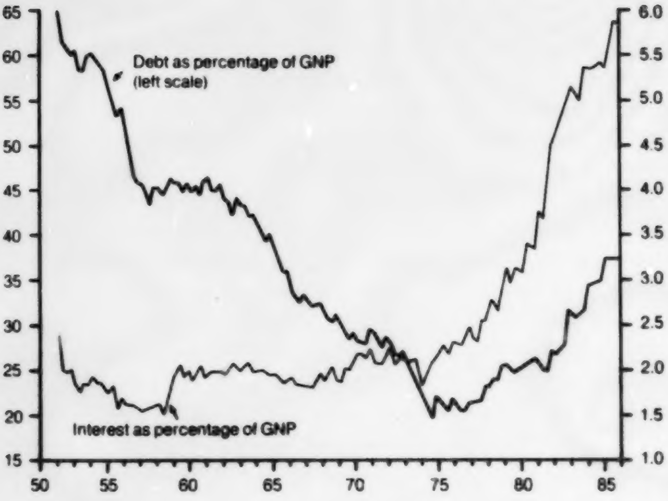
Financial markets today still have every reason to worry about this pattern. Elected and authoritarian governments alike continue to follow policies of monetary expansion, often with the deliberate intent of debasing their currencies. It is of course necessary to keep in mind that a debasement of the currency that is widely anticipated will not provide the government with cheap financing. If everyone expects a high inflation rate, then prices will tend to rise at a rate that thwarts the government's efforts. Currency debasement will only provide cheap financing if the currency is pressed on those who are unaware of the rate of debasement.

Price stability is one thing. Expectations of price stability are another. A government that has once destroyed social trust in price stability must work painfully and hard to restore it. Thus monetary debasement is by no means a simple game to play. It is also evident that there is no necessary connection between monetary debasement and government deficits. Nevertheless, the temptation to finance ministers to try to engage in cheap finance, especially in times of war, recession, and social strain, is obviously very great. Figure 1 illustrates for Canada the size of the federal debt relative to GNP and the cost of interest on the public debt, also as a percentage of GNP, from 1951 to the present. In the early post-war years, even though the country was still living with the public debt accumulated during the Second World War, the burden of interest payments on the debt was for taxpayers not an onerous one. By comparison, the heavy compensation now levied by lenders for the expected rate of inflation has exploded the cost to taxpayers of the present round of expansion of the national debt. This cost, together with the burden of interest both individuals and corporations carry because of their own borrowing activities (see Figure 2), has resulted in a huge ongoing transfer of real resources from borrowers to lenders - a transfer that is felt to be oppressive and that creates a significant temptation for borrowers, private and public, to try to find ways to ease the strain.

A second legitimate bogey is the threat of crowding-out. Let us assume for the moment that deficits do not spawn excessive money creation. Nonetheless, the real resources used up by government outlays must be either borrowed or financed through taxes. Here the question is one

Figure 1
Interest on the federal debt as percentage of GNP and federal debt as percentage of GNP

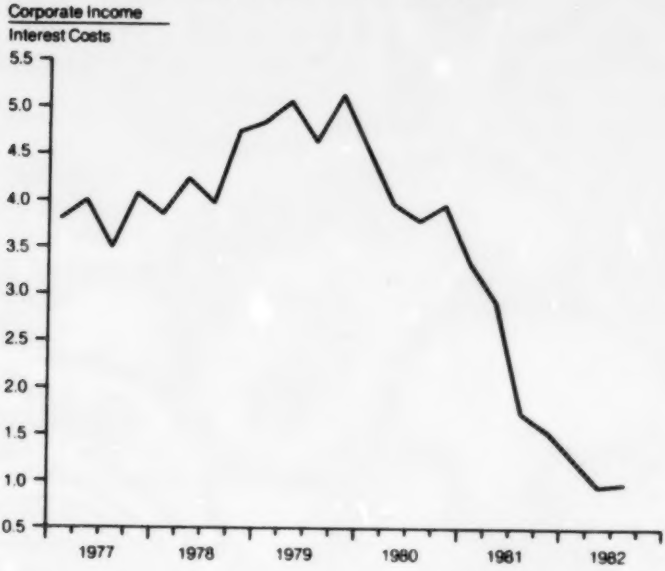


SOURCES: Statistics Canada; Bank of Canada; forecast from 82:IV by Wood Gundy Limited.

not of inflation but simply of deciding who of all the individuals in society will be permitted access to the available real resources and on what terms. Even given that monetary policy is appropriate, in the sense that it tends to generate just enough monetary demand to employ society's physical resources without destabilizing the price level, the superior credit of the government could freeze out some would-be private spenders just as effectively as an outright increase in taxes.

On the other hand, if policy is appropriate in the sense I have just mentioned, one can certainly argue that government will not physically crowd out private borrowers as long as there are under-used resources available. Despite whatever level of borrowing governments undertake in the capital market, the monetary authority can manage matters in such a

Figure 2
Canadian industrial corporations' interest coverage



SOURCE: Statistics Canada, *Industrial Corporations Financial Statistics*

way as to ensure a level of total demand, including private demand, just sufficient to employ all those who wish to work at the going wage rate. Thus, as at present, interest rates can fall to encourage private borrowing, despite the heavy financing requirements of government.

This point stresses the overriding importance of monetary policy, not just with respect to the determination of the future of inflation and the rate at which the national debt is eroded by monetary debasement, but also with respect to the crowding-out issue itself. The monetary authority effectively takes on itself to determine the relative price of money and bonds; that is, the rate of interest. Can an overambitious fiscal stimulus lead to physical crowding-out? Yes it can, but only if the monetary authority permits it. In this sense, financial crowding-out is not at all the same as physical crowding-out. For instance, if the Federal Reserve forces interest rates to rise next year in the context of a huge Reaganite deficit, the effect will be to prevent the sort of physical jostling for real resources that might otherwise encourage and permit a return to inflationary behaviour.

However, this is certainly not the end of the story. Canada, as Professor Wirick pointed out in the previous paper, is an extremely open economy with respect both to trade and to capital flows. Even if Canadian domestic physical resources were fully utilized, Canadian borrowers would still have access to foreigners' savings, and thus to their real resources as well. There is nothing to prevent Canadians from borrowing foreign resources and using them, as long as they are willing to pay the appropriate rate of interest on the international capital markets. In fact, the Canadian economy is so small relative to the world economy that it is probably impossible for the Canadian government to physically crowd private Canadian borrowers out. It can crowd them offshore, but it cannot - at least not through fiscal policy alone - deny them access to real resources. On the other hand, as Professor Wirick has noted, 'irresponsible' behaviour by the Canadian government, if perceived by foreign lenders, can raise the cost of funds to the government and to private Canadian borrowers in foreign markets. Professor Wirick's effort to estimate the risk premiums involved is interesting. The threat of behaviour that could lead, for instance, to devaluation of the Canadian dollar is constantly and vigilantly assessed on financial markets.

One sometimes hears the argument that, by forcing Canadian borrowers offshore, the government effectively denies some of them access to funds because the cost of financing in offshore capital markets can be prohibitively high. We are considering here costs such as those associated with marketing new securities, introducing the borrower's name, and so on. Indeed, many Canadians' funding needs are simply not large enough to warrant such efforts. However, there are many Canadian financial intermediaries engaged in minimizing these costs, including my own industry and the Canadian banks. Canadians are certainly frequent and heavy users of non-resident savings. Recent experience demonstrates very strikingly how, at times when Canadian domestic saving falls short of total investment requirements, the country simply expands its offshore borrowing. Canadians have generally been considered excellent risks by foreign lenders, who are impressed by our affluence, our economic diversification, and our relative political stability. The extent to which the foreign capital market can be a safety valve was demonstrated during 1981, when the Canadian chartered banks expanded their net foreign liabilities from $3 billion to $5.2 billion and their gross foreign liabilities by a staggering $40 billion, from $113 billion at the start of the year to $152.6 billion at the end. Through Wood Gundy and its fellow investment dealers, Canadian borrowers offshore raised a further $9.5 billion net in bonds, shares, and short-term commercial paper in 1981, denominated in Canadian dollars as well as in foreign currencies.

Figure 3 illustrates how the Canadian chartered banks were able, at a time of exploding demand for large business loans, to maintain their loans to small business at the same time. Much of this lending was funded offshore.

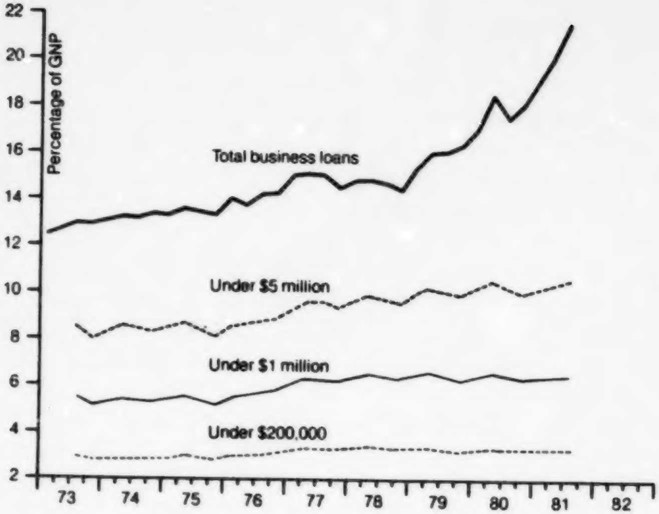
Of course, foreign borrowing does carry an exchange risk. But I find it very difficult to believe that such problems account for the general antipathy felt in financial markets toward deficits. It may be that the aversion expressed by market participants to deficits is really the squawk of the overburdened taxpayer. If this is the case, then complaints about deficits are simply a reminder to ministers that there is no free lunch. Postponement of taxes through borrowing carries a heavy real interest cost these days, and it simply shifts the burden of paying for government outlays from today to tomorrow. At least some taxpayers are well aware that their tax burden will be augmented in the future by the full amount of the deferral plus the real interest rate, whatever that turns out to be.

However, this explanation does not entirely satisfy.

We don't really know very much about how the burden of the accruing real interest on the national debt is perceived by capital market participants. Some of them, conceivably, might prefer to bear tax now, rather than wait and pay the real rate of interest on the accruing national debt. On the other hand, capital market participants may simply represent the group of taxpayers who feel that they will receive less than an adequate return on their tax dollar, whether present or future, and who are simply and sourly pointing out to the minister that they cannot be appeased by postponement of their tax bill.

It can certainly be argued that participants in the financial markets are likely to be relatively free of debt illusion. That is, they are more likely than most people to recognize that tax deferral carries a cost, namely the real cost of interest. However, it is interesting to consider the possibility that the people in financial markets who strongly oppose

Figure 3
Business loans as percentage of GNP



SOURCE: Bank of Canada (series discontinued in 1981).

deficits also represent the class of taxpayers who strongly prefer current to deferred taxation. In other words, the tax burden associated with government outlays and transfers may excite less concern among market participants than the decision to postpone this burden. This possibility may seem rather unlikely, but we must consider the fact that the interest burden of the national debt, relative to the GNP, is currently at an all-time high (see Figure 1). We must recognize that there are groups of taxpayers who might well wish to reduce this interest burden even if such a reduction involved paying higher current taxes. Who might these people be?

For a start, those who expect their average tax rates to rise in the future might have a preference for paying now. This group includes many young, upwardly mobile individuals.

Second, people who have few attractive alternative investment opportunities at the present time might be relatively happy to pay tax now and save the cost of future interest on the public debt; on the other hand, those who expect to do relatively well in the stock or real estate markets would probably rather defer the tax bite, since they would expect to be able to pay the interest on the national debt out of their superior private gains.

A third group of taxpayers might simply be relatively indifferent between purchasing power today and purchasing power tomorrow. Such individuals would presumably rather save the real interest cost associated with a mounting public debt by paying taxes now.

However, I think we would most likely find that the antipathy of financial market participants to deficits is largely an expression of the opinion of highly independent, highly enterprising, so-called 'self-made' individuals, people who expect to receive less government services than they pay for, people who also happen to be adept at piercing financial veils and at understanding the code language of financial statements, people who are expert at assessing the burden of debt, private or public. A most fascinating study could be made of the characteristics of financial market participants - a study that would help us more fully understand the phenomena we are exploring today.

What we have seen so far is that there is indeed a legitimate reason for continuing concern by bondholders and their representatives about the threat of future unanticipated debasement of the currency. Bondholders are not interested in paper returns; they are interested in the purchasing power of their returns, and the greatest risk they face from governments is the repudiation, overt or covert, of the real interest burden of the debt. Crowding-out, on the other hand, is unlikely to be the real issue. Financial crowding-out is not the same thing as physical crowding-out, and anyway Canadian fiscal policy, unless it is highly irresponsible, is not able to deny creditworthy Canadian borrowers access to real resources as long as they are prepared to pay the going international rate of interest for credits of a given class. We have seen that complaints about deficits emanating from financial markets might stem simply from the antipathy to additional taxation of individuals who are particularly free from illusion about the real cost of tax deferral. They could even stem from individuals who have particular reasons to prefer being taxed today to being taxed tomorrow, given their anticipation of the real interest cost of adding further to the national debt.

The inflation theme is the important one. Unanticipated reduction in real interest returns due to unexpected monetary debasement is the real threat for bondholders. We can think of the bargaining between bond buyers and the government as a struggle in which the latter holds an excess of power. Potential bond buyers will make their choices on the basis of the alternative opportunities open to them, including the real rate of interest they can expect on the international capital markets, with all the uncertainties associated with those alternatives. The Canadian government must compete with those alternatives in offering an expectation of real return, but it always has an opportunity, after the bonds have been placed, to change the real rate of return from the rate that had been anticipated. Specifically, the government can unexpectedly debase the currency. Thus, in the negotiations surrounding the issue of government debt, both parties engage in a complex assessment of each other's responses. The government will wish to provide as credible a facade as possible for its anti-inflationary posture, hoping to induce bond purchasers to reduce their insurance premiums against future debasement. The bond buyers, on the other hand, will take past experience into account in setting their inflation premiums, and if that experience includes a series of anticipated or unanticipated episodes of monetary debasement and resulting inflation, they will charge higher inflation premiums.

This description of the strategies on both sides is, of course, incomplete and overly simplified. For one thing, in the real world the parties are not independent of each other. Most of the people to whom the government wishes to sell bonds are also taxpayers. The 'game' is therefore horribly complicated. However, I think that here and now, in 1983, the market's suspicions about unexpected future monetary debasement are extraordinarily high, greater in fact than they need to be. As far as short-term securities are concerned, at least, the probability is very low that inflation will be so high that an investor today would earn only a low real return on them. In fact, at this point the government has little hope of cheating the financial markets, because it can only reduce the inflation insurance premium to low levels by pursuing a policy that amounts to pleasantly surprising the market over an extended period of time. Past monetary debasement has caught up with the government, and it is still exacting a compensatory risk premium in the interest rate on new borrowing.

If the capital markets are enforcing monetary discipline on governments now, it is a discipline that, paradoxically, is strengthened, not weakened, by the existence of a huge ongoing deficit. After all, if the government were now running a balanced budget or a surplus, and expected to continue to do so, it could be relatively indifferent to the market's insurance premium. In fact, it has no option but to submit itself to the market's judgment, and it can only reduce the investors' premium by persistently surprising them with the effects of monetary restraint.

This suggests the proposition, which some may find amusing, that the best time for a government to adopt unanticipated monetary expansion is not when its deficit is high, but later, when through a succession of surpluses it has reduced the potential costs to itself of exciting a new increase in investors' inflation premiums. As long as the government requires a great deal of borrowed money, it faces a financial market that may punish it for previous bad behaviour. Once it has reached a state of budget balance, once it has locked-in the holders of the outstanding debt, the debt holders are at its mercy. A bout of unexpected debasement at that point would reduce the real cost of servicing the outstanding debt, and if the budget remained in balance - so goes the argument - the insurance premium would never have to be paid.

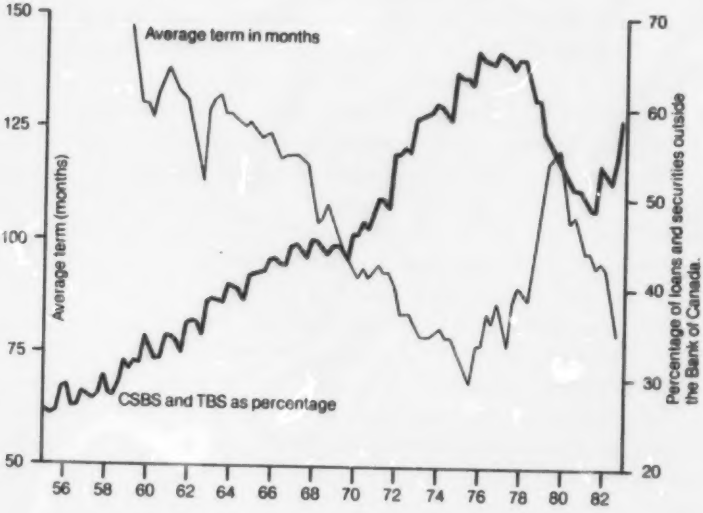
Therefore, we can argue that participants in Canadian capital markets are unnecessarily paranoid at the moment. Their very wariness will enforce good behaviour.

This assessment is reinforced by the fact that the existing federal debt is for the most part relatively short-term debt. A minister of finance who ordered his central banker to pump up the money supply would quickly find that a sizeable chunk of the outstanding debt would have to face refinancing at high inflation-insurance premiums.

Figure 4 illustrates the evolution since 1955 of the maturity structure of the national debt. Financial market participants have protected themselves against unanticipated inflation by shortening term. It is interesting to observe that the average term of the federal debt in the hands of the general public, not including Canada Savings Bonds, reached a modern minimum of 5 years and 9 months in mid-1975 after a stiff bout of inflation, then slowly wound its way back up to 10 years and 4 months in late 1979 as inflation fell, and since then again has been falling, to 6 years and 6 months at the end of November 1982.

Actually, even the government, not just the holders of the debt, has

Figure 4
Average term to maturity of federal marketable securities held by the general public, and Savings Bonds and Treasury bills as percentage of federal loans and securities held outside the Bank of Canada



SOURCE: Bank of Canada.

an interest (from a different perspective) in reacting to unanticipated inflation by shortening the term structure. Given the lag between monetary expansion and the resulting inflation, the holders of debt maturing in, say, up to two or three years can be reasonably certain that they will not lose much of their anticipated real return as a result of unexpected currency debasement; thus the inflation insurance premiums on short-term debt should be lower, and thus less onerous for the government, than those on long-term securities.

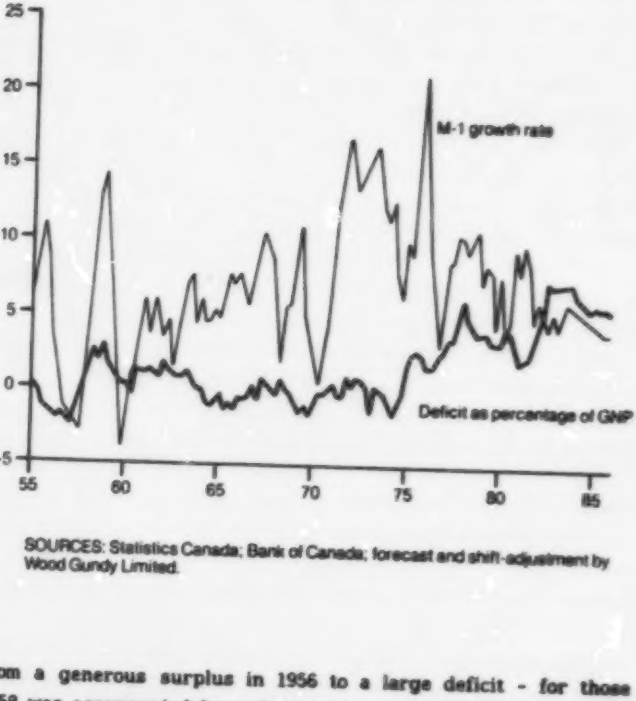
The thin line in Figure 4 shows the behaviour of the average term to maturity of the government's unmatured direct and guaranteed securities, including Treasury bills but not Canada Savings Bonds and perpetuals, held by the general public (that is, outside the Bank of Canada, the chartered banks, and government accounts). The solid line shows, for the total of federal government loans and securities outstanding not held by the Bank of Canada, the percentage represented by Treasury bills and Canada Savings Bonds.

Both measures tell a similar story. As inflation climbed during the 1960s and early 1970s, the government permitted its debt to shorten in term. After inflation began to fall, in 1975, a successful campaign was carried out to lengthen the term of the debt and put less reliance on short-term instruments. However, since the re-ignition of inflation in 1979, the average term of the debt has once again shortened quite dramatically, and there has even been a major return to the Canada Savings Bond market.

All this suggests to me that the government would not be a big winner from a covert or unanticipated effort to reflate. In fact, I would argue that the government's past behaviour has built up such paranoid suspicions in the marketplace that its only hope for cheaper borrowing costs is to pursue a credible and sustained anti-inflationary monetary policy over the years. This will not prevent it from having to pay a real interest rate competitive with other borrowers, but it will tend at least to reduce whatever insurance premiums paranoid investors impose, and it will allow the government greater freedom to lengthen the term of the debt structure if that seems to be appropriate.

Let me turn to a different question. Have deficits over the last twenty-five years actually led governments in Canada to accelerate monetary expansion? I do not propose to examine this carefully, but Figure 5 provides us with a quick appreciation of the facts in the case. We see here, quarter by quarter, the federal deficit (on a National Accounts Basis) as a percentage of the GNP, seasonally adjusted at annual rates, and the four-quarter rate of expansion of narrow money, M-1. It is immediately clear that there has been no simple relationship between deficits and the rate of monetary expansion. Certainly, one cannot pin the blame for the massive monetary explosion of 1970-2 on the deficits of that day. In fact, during the early part of that explosion, the federal government was more or less continuously in surplus! On the other hand, some in this audience will remember that James Coyne, the Governor of the Bank of Canada during the Diefenbaker years, was dismissed in effect because he wished to pursue a hard money policy, which the government of the day could not stomach. It is evident from the chart that the swing

Figure 5
Federal deficit as a percentage of GNP vs. four-quarter growth rate of M-1 (shift adjusted from 81:I)



SOURCES: Statistics Canada; Bank of Canada; forecast and shift-adjustment by Wood Gundy Limited.

from a generous surplus in 1956 to a large deficit - *for those days* - in 1958 was accompanied by a dramatic leap in monetary expansion. However, this leap had minimal inflationary consequences, probably because Mr. Coyne quickly took action to reverse the process and actually reduced the money supply during late 1959. Mr. Coyne's independence was, of course, intolerable to the government of the day. Canadian central bankers have learned a lesson from this experience, and now the Governor would be obliged to offer his resignation should he feel unable to carry out the monetary policy of the government.

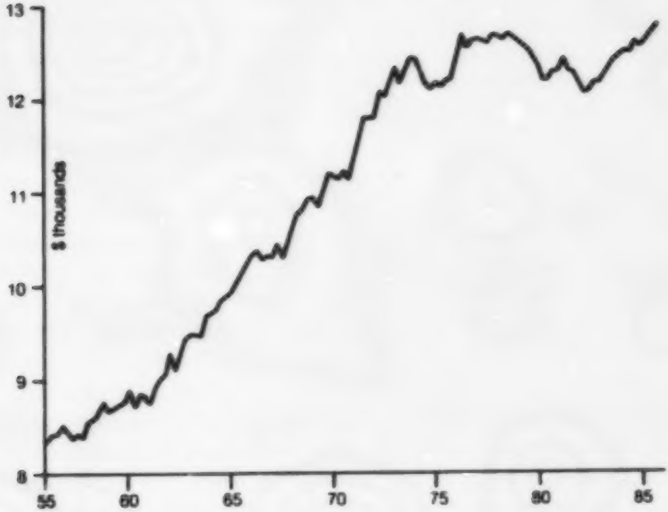
The last five years certainly demonstrate an association of deficits and inflation. However, it is not easy to argue in this case that the government's deficits have tempted the Bank of Canada to accelerate the pace of monetary expansion. It is much easier to argue the converse: namely, that stalwart monetary deceleration, given the stubbornness and entrenchment of previously-awakened inflationary pressures and OPEC oil prices, has given us a major recession and a huge cyclical deficit, a deficit worsened by the exploding cost of interest in both real and nominal terms. In this view, monetary restraint causes deficits! However, the way out of the dilemma is not to re-inflate the money supply, but instead, if necessary, to use supporting mechanisms to hasten the decline of inflation itself. Given the rate of monetary expansion, this approach permits greater real activity, growth in tax revenues, and reduced unemployment insurance costs. In fact, the benefits of years of increasing restraint are finally beginning to appear. Inflation is falling rapidly, real economic activity is beginning to rise, workers and businessmen alike are taking steps to ensure that they will survive and prosper in a low-inflation world. But the capital markets demonstrate that heavy weight is still given to the possibility of re-inflation. In retrospect, we would probably have made a quicker adjustment to reality had the Bank of Canada adopted a severe rather than a gradual approach to monetary deceleration in 1975. Since inflation follows cumulatively upon the cumulative rate of growth of money over time, it would have been possible, and arguably less painful, for Canada to have eliminated inflation relatively quickly by the mid-1970s, when we were not so habituated to it. (Possibly, the experience of Mr. Coyne was in the minds of the government and the Bank when the decision to embrace gradualism was made in 1975. If so, it is not at all clear that they drew the right conclusion from his experience.)

With the assurance that hindsight provides, I can argue that the Canadian experience of both inflation and deficits in the last decade has been fundamentally nothing but a symptom of our unrealistic ambitions. We failed to realize in time, in the early 1970s, that our productivity potential had begun to stagnate. Monetary stimulus in the early 1970s, the self-indulgent gradualism that followed it, and the mounting federal deficits that followed the gradualism can in retrospect all be viewed as symptoms of our unwillingness as a nation - or our inability as a nation - to confront realistically the stagnation of our physical productivity potential (see Figure 6).

To refer again to Figure 1, note that I have extended the historical data on the debt and the percentage of GNP required to service the interest on it through 1985, using our current economic forecast. In the forecast I have assumed that the Bank of Canada will maintain the equivalent of a stable growth of M-1 this year, followed by renewed deceleration in 1984 and 1985 (see also Figure 7). We have reached a point in the evolution of monetary and fiscal policy where we are making very substantial progress against the rate of inflation. Wage pressures, the last of the major components in the inflation cycle, are now decelerating very rapidly. As we have seen, however, inflation insurance is still very much in evidence in the financial markets. If government has the courage and sense to maintain steadfast monetary policies, consistent with the low inflation rates we should achieve in the next few years (see Figure 8), we will manage to lock in those low rates of inflation and, at an increasing rate, find workers and companies pricing themselves effectively into work. Given appropriate monetary discipline, the deficits of the federal government will, in my view, also finally tend to look after themselves. As inflation falls, and as monetary discipline persists, the inflation insurance premium built into interest rates will decline, while the acceleration of real economic activity will generate strong real growth in personal and corporate income tax revenues for the government. I believe that in the decade to come voters will prefer to see the role of government in the economy continue to decline (see Figure 9). Despite some social priorities, such as the expansion of the western rail network and oil self-sufficiency, that may continue to require heavy infusions of public funds at the federal level, it seems very likely that with our low complement of dependent young and old, and our heavy complement of 25- to 40-year-old strivers, we will see a reduced demand for government services relative to the size of the economy as a whole. These assumptions taken together suggest to me that it may be relatively easy for the government to reduce its deficit in the late 1980s. However, the capital markets will only slowly reduce their inflation insurance premiums. They will remain vigilant against the threat of unexpected monetary debasement long after the behaviour that gave rise to their vigilance has vanished.

To sum up, I think we would be wrong to place great emphasis on the temptation that deficits, or the costs of servicing them, represent for governments. In my opinion, a strong and reliable consensus has grown up in the last decade, not just in Canada, in support of the belief that the continuing costs to society associated with high and variable inflation rates are more onerous than the once-and-for-all costs associated with returning to a reasonably stable price level. The difficulty for the future

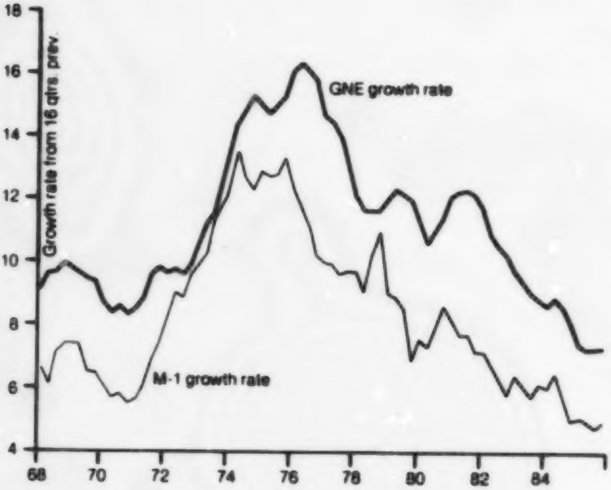
Figure 6
Real GNP per employed person



SOURCE: Statistics Canada to 82:III; forecast by Wood Gundy Limited.

is not that Canadians will be unwilling to complete the transition to stable price conditions, but that the Bank of Canada may have some forecasting problems in trying to decide what rate of money growth to aim at in order to ensure reasonable price stability. We have very inadequate information about our stock of capital, about its rate of obsolescence, and about its ability to meet the changing mix of product demands as the 1980s continue. We are uneasily aware that many carefully-developed labour skills will require substantial reinvestment or may even have to be abondoned as microtechnology substitutes across the board for many heretofore human functions. It will be difficult, therefore, for governments and central bankers to gauge the capacity of our physical and human capital, the 'supply side', to respond to any given growth rate of nominal demand

Figure 7
Growth in nominal GNE vs. growth in 'shift-adjusted' M-1 (four-year growth rates)



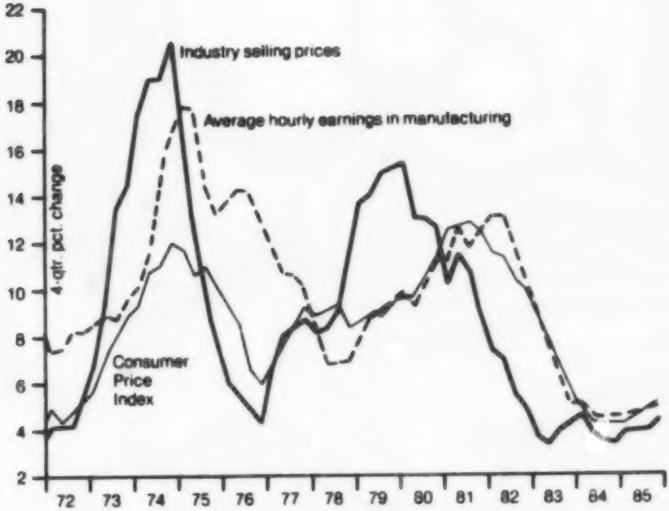
NOTE: Policy assumption is that, after adjusting for shifts in demand for M-1 since 1980, the annual 3rd quarter to 3rd quarter growth rate of M-1 will be held to 6 per cent in 1983, 5 per cent in 1984, and 4 per cent in 1985.

SOURCES: Statistics Canada; Bank of Canada; forecast and shift-adjustment by Wood Gundy Limited.

without departing from reasonable price stability.

On the whole, I expect that central bankers and governments will try to reflect this supply-side uncertainty by maintaining generally cautious monetary and fiscal regimes. The message that the capital markets are trying to deliver is, in my opinion, one that Ottawa has accepted for some time, despite appearances to the contrary. Of course, it is impossible for government to eliminate its deficit in the next few years. The very effort to do so would thwart itself. There is, however, room to begin taking fiscal actions that would shift the tax burden from future taxpayers back

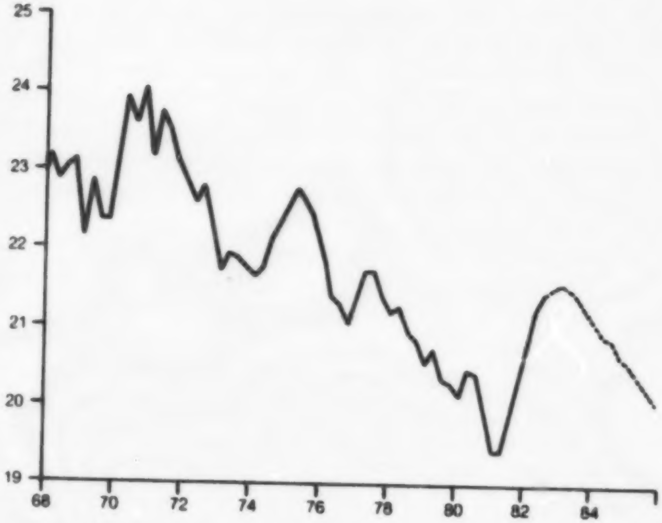
Figure 8
Various measures of Canadian inflation



SOURCES: Statistics Canada; forecast by Wood Gundy Limited

to the present, but such actions would have to be directed specifically at those most capable of bearing their weight. As far as the capital markets are concerned, the most important treatment for deficits is likely to be steadfast monetary restraint: a slow-acting cure, but a certain one.

Figure 9
Government expenditure on goods and services
(not including transfer payments) as percentage of GNE



SOURCES: Statistics Canada to 82:III; forecast by Wood Gundy Limited.

Roger Keane*

In assessing John Grant's work on the issue of deficits and capital markets, one can quickly identify several winning points. First, it is true that differentiating in the strict sense between private and public deficits, especially federal government deficits, has led to unnecessarily worried markets. Nevertheless, the paramountcy of market interpretations cannot be ignored. Second, the crucial difference between financial crowding-out and physical or real resource substitution has been correctly stressed. Third, the appropriate policy prescription for markets and indeed the economy, the implementation of a non-debasement monetary policy, may yet be initiated. However, like most good analyses of complex questions, Dr. Grant's paper may have opened more doors than it has closed. I would like to pursue and expand on some of these themes in the interest of both adding perspective and emphasizing the importance of the questions raised.

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* Vice-President and Chief Economist, Midland Doherty.

I propose to comment on four areas: those rigidities within markets that determine the so-called 'paranoia premium' in interest rates, the impact of irresponsible behaviour, the types of crowding-out, and finally the appropriate policy description.

As a starting point, I would like to emphasize the difference between the theorist's world and the real world, at least the real world of capital markets. For example, in the theoretical world, supply curves are assumed to be continuous (ending only at the margin of Samuelson's text). In practice, supply curves do not go on forever. They do stop. Consider the example of a hypothetical Argentine financing, which I propose to offer this audience at the exceedingly attractive rate of 'Libor plus 7 per cent'. How many buyers would there be? None.

The point is that because economic theory is highly aggregated it tends to assume away such problems. Indeed, in the real world there is no price for our hypothetical issue. Whether this relates to the 'paranoia' of the game players (or whatever) is irrelevant, since the rigidities are there. More likely, the experience of the participants (expectations) has led to such conclusions. This topic represents a key element in the discussion.

RIGIDITIES

Rigidities in capital markets develop on the basis of a mix of expectations and perception. They commonly take the form of quotas, credit limits, or other reflections of attitude and can regularly disrupt what ought to be (by theory) an efficient and unbiased allocation of capital.

An examination of offshore borrowing potential will clarify this point. Whereas Canadian business and governments have had free and easy access to foreign markets in the past, it is no longer clear (a) that those markets will have unused capital or (b) that real-world risks and rigidities may not now discourage Canadian borrowers, effectively crowding them out.

There are four specific concerns:

1. The size of government financial needs in the United States and Europe may have reduced the capital available for foreigners.
2. Besides the obvious danger of volatile international exchange rates, twenty-year securities cannot be hedged in futures markets (one year is the maximum protection).
3. Medium-sized Canadian companies are not known in external markets (e.g., Dominion Stores).
4. The international banking system limits the credits available to any one country. If governments utilize the available credit lines, business will have no access.

Each of these considerations raises the spectre of greatly limited credibility and capacity for Canadian borrowers, especially corporations, in foreign markets.

I would offer three other examples of the substantive impact of the rigidity phenomenon. While there is no theoretical difference between the federal government's and a corporation's, say IMO's, requiring $1 billion of bond funds, the market may respond negatively to the perceived presence of government needs. Such responses imply that the markets do in fact differentiate between the types of financing. This differentiation can presumably be traced to the fears of individuals (who compose the market) that deficits represent a lack of discipline in that they inherently encourage the postponing of costs. Given the assumed desirability of delaying costs from a political standpoint, it is logical that this process should be thought to lead to higher spending and, inevitably, higher deficits. Whether this proves to be the end result or not, the market's judgment, as the highest court on these matters, is correct.

Another rigidity or perception challenges the well-established dictum (Stigler) that appropriate transaction prices can be found at all times. At what price would Dome Petroleum be able to raise bond monies today, 100 per cent or 200 per cent? The answer is at no price. This would be the case not because the price was not a sensible one, but because people would not buy the bonds. Again, the market has made a judgment and, uninformed or not, this judgment is an indelible fact.

The final example of the pervasiveness of rigidities relates to small business. Despite the evidence in Dr. Grant's graph depicting bank lending at all levels of business, this represents another aggregat picture. In recent years, small business in Canada has had access only t floating rate bank loans. Given the illiquidity of corporations (62 per cen of adjusted cash flow went to interest payments as of the second quarte of 1982), such funds, while available, are inappropriate for many smal businesses. Such discomfort factors (conditions possibly accentuated b rising deficits) are capable of crowding out potential borrowers.

IRRESPONSIBLE BEHAVIOUR

The size of government deficits is not necessarily the only indication o irresponsible behaviour. Surely, a debt management policy that contrive the issuance of 19.50 per cent Canada Savings Bonds can be viewed a irresponsible. The reality is simple. No private corporation could compet with such largesse, not because it was prevented from paying a premiu interest rate but because it would not contemplate this gesture (let alon this maturity structure). This debt management program substantiall altered the capability for private term fundings. Moreover, it impacte expectations on the type of offerings that could be anticipated from gov ernment.

FINANCIAL VERSUS PHYSICAL CROWDING-OUT

Most commonly, crowding-out is a financial phenomenon. However, seems to this observer that while a difference exists between the two form of crowding-out, financial displacement can produce physical crowding-ou Assuming that a lack of funds has inhibited corporate expansion, an given the government's ability to expand (fiscal policy) and its uniq capability to finance (monetary policy), there exists the temptation f governments to occupy resources that would otherwise be used privatel This may be seen as a moral obligation; nevertheless, an occupation private resources will occur.

Perhaps, in this regard, it is a positive development that capit markets are skeptical about the implicit deficits.

POLICY PRESCRIPTION

Despite the desirability of John Grant's recommended 'steadfast moneta restraint' the problems associated with its attainment could be considerable. Given the presumption of ongoing high risk premiums in interest rates, this policy course risks higher interest rates in the short term, which may choke off recovery. Avoidance of this politically undesirable outcome could mean return to the dangers of the old stimulative religion.

More to the point, however, problems in capital markets seem to relate primarily to the unwillingness of government to alter its rapid deficit expansion strategies of the last ten years through either tax increases or expenditure curtailment. This policy direction and the related expedient debt management policy have justifiably upset capital markets. If not addressed, this policy course will not only guarantee the maintenance of high risk premiums in interest rates but also risk validating those premiums by rekindling inflation. On this basis, the market may be conscientiously right after all!

Government deficits: historical analysis and present policy alternatives

John McCallum*

This paper presents an analysis of Canadian fiscal policy in the past and then considers options for the present and future. Recently there has been renewed interest in the Great Depression of the 1930s, and several commentators have wondered aloud whether that experience might ever be repeated. In part, the answer may depend on fiscal policy, and following the development of an analytical framework in the first section of the paper, the second section considers the role of fiscal policy in the thirties. What was the stance of fiscal policy, and how much did it contribute to (or alleviate) the Depression? How much less severe would the Depression have been if today's automatic stabilizers had been in place and/or today's approach to discretionary fiscal policy had then prevailed? Or, to turn the question around, how much worse would our present recession be if we had followed 1930s-style fiscal policy in 1982? Answers to these questions may shed light on the importance of fiscal policy, as well as on the likelihood of another depression.

The third section presents an analysis of fiscal policy since the Second World War, with emphasis on the past decade or so. The key issues addressed are whether we now have a structural deficit and whether fiscal policy over the past decade has stabilized or destabilized the economy. To answer this last question, simulations were conducted to estimate what would have happened if the federal government had pursued a 'fixed fiscal rule' rather than the policies it actually conducted. Based in part on the historical analysis, the fourth section considers present policy options and presents conclusions.

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ANALYTICAL FRAMEWORK

The standard national accounts budget balance may be written as:

$$B = T - G - iD, \qquad (1)$$

where B is the nominal budget balance or surplus, T is nominal taxes minus transfer payments, G is nominal government spending on goods and services (current and capital), i is the nominal interest rate on government debt, and D is the nominal value of the government's net interest bearing debt. Taxes-minus-transfers may be divided into two categories: the non-cyclical component that would prevail at 'normal' levels of economic activity and the cyclical component due to deviations of nominal GNP (y) from its normal level ($\bar{y}$). These two components may be designated respectively $\bar{T}$ and $-z(\bar{Y}-Y)$, where z is the marginal tax-minus-transfer rate. A second decomposition is to rewrite iD as $(r + \pi)D$, where π is the inflation rate and r is the ex post real interest rate defined as $i - \pi$. Using these two compositions, the budget balance B may be written in the alternative form:

$$B = \bar{T} - G - rD - \pi D - z(\bar{y}-y). \qquad (1a)$$

The conventional cyclical adjustment to budget balances is given by the last term of equation (1a), while the conventional inflation adjustment is given by the second to last term. Thus the cyclically- and inflation-adjusted budget balance may be written:

$$B^A = \bar{T} - G - rD. \qquad (2)$$

Two questions may now be raised. First, is equation (2) an appropriate measure of the 'structural' budget balance? If $B^A = 0$, then real government debt will be constant over the business cycle if deficits are entirely bond-financed. However, if one defines neutrality as a constant ratio of government debt to GNP and if one also allows for high powered money creation, then the structural budget balance becomes:

$$B^S = \bar{T} - G - (r-g)D + (g+\pi)H, \qquad (3)$$

where g is the growth rate of real GNP and H is nominal value of high-powered money. If $B^S = 0$, then the ratio of government debt to GNP will be constant over the long run, although because of the automatic stabilizers the debt ratio will rise during recessions and fall during booms.

The second question is whether equation (2) gives an appropriate measure of discretionary fiscal policy. Three points may be made on this issue. First, changes in the adjusted budget balance B^A are not necessarily discretionary: for example,. B^A is affected by the real interest rate and the world price of oil, neither of which is subject to full government control. Thus B^A may be viewed as the 'non-cyclical' component of the budget rather than the 'discretionary' component. Second, as a measure of fiscal stance the budget balance should be stated in real rather than nominal values, and this will make a difference to the extent that there are changes in relative prices over time. Finally, each component of the budget should be weighted by its multiplier or first-round impact on aggregate demand.

Incorporating these amendments and using lower case letters for real variables, the budget balance as a measure of non-cyclical fiscal policy may be written:

$$b^F = (c-m)\bar{t} - (1-m_g)g - (c-m)(1-t)(1-m_D)rd, \qquad (4)$$

where c, m, and t are the marginal propensities to consume, import, and be taxed, m_g is the import share of government purchases, and m_D is the percentage of government debt that is held by foreigners. It can be seen that the fiscal impact of changes in g is likely to be greatest, while the impact of changes in real interest payments is likely to be weakest, especially if a large proportion of the debt is held by foreigners. The variable πD is not included in (4) because this amount is required to maintain the real value of interest-bearing assets and hence should be fully saved.

The next two sections apply this analytical framework to the thirties and then to the postwar period. A formulation such as (3) will be used for questions concerning structural deficits, while a formulation such as (4) will be used for issues relating to the fiscal impact of the government budget.

THE THIRTIES

Between 1929 and 1933, Canada's real GNP and total employment both fell by 30 per cent, and it was not until the end of the decade that output and employment had recovered to their 1929 levels. Throughout the 1930s the unemployment rate varied between 9 per cent and 19 per cent. The purpose of this section is to analyse the impact of fiscal policy during this period and to compare Canadian policy with that of the United States. We begin with a description of the methods used to measure the stance of fiscal policy and then turn to a Canada-U.S. comparison and an analysis of the impact of fiscal policy. This is followed by an attempt to answer two hypothetical questions. First, to what extent would the Depression have been moderated if fiscal policy had been conducted in what might today be judged to be a 'reasonable' manner? Second, what would have happened if the discretionary policies of the thirties had remained unchanged but the automatic stabilizers of the 1980s had been in place during the thirties? The answers to these two questions permit a reponse to the third and final question: how much worse would our present recession be if fiscal policy in 1982 had been conducted along the lines of fiscal policy in the thirties?

The estimates

The basic data used in the analysis are set out in Table 1, which provides estimates of six components of the budget balance for both the federal government and the government sector as a whole. Each of these components is expressed as a percentage of potential GNP, which was estimated by applying a constant growth rate to the actual level of real GNP in 1929. Following the same procedure used by Brown (1956) for the United States, this growth rate was obtained by drawing a straight line between the actual levels of real GNP in 1929 and 1942. This procedure gives an annual growth rate of potential output of 3.9 per cent for Canada as compared with 3.2 per cent for the United States.

Referring now to the columns of Table 1, g is real government spending on goods and services as a per cent of potential GNP, $\bar{t}$ is the non-cyclical component of taxes-minus-transfers excluding interest in the national debt. Interest payments are broken into two components: the inflation premium component πd and the ex post real interest payments component rd. The fourth column ($-zGAP$) gives the cyclical component of

TABLE 1
Components of government budget balances, as percentage of potential GNP, 1929-42

All governments							
	$-\bar{g}$	$\bar{t}$	$-rd$	$-\pi d$	$-zGAP$	RPE	$\dot{B}$
1929	-11.5	13.8	-2.8	-.8	0	1.5	.2
1930	-12.7	12.6	-5.2	1.5	-1.2	1.4	-3.6
1931	-12.0	13.2	-8.7	4.7	-3.1	.8	-5.1
1932	-10.5	14.3	-12.1	7.5	-4.4	.3	-4.9
1933	-8.3	15.5	-6.1	1.4	-5.7	.2	-3.0
1934	-8.6	14.6	-3.3	-1.2	-4.8	.2	-3.1
1935	-8.8	14.7	-3.8	-.4	-4.6	.2	-2.7
1936	-8.4	16.3	-1.1	-2.9	-4.7	.3	-.5
1937	-8.9	16.3	-1.6	-2.1	-4.3	.2	-.4
1938	-9.2	14.9	-3.4	0	-4.5	.2	-2.0
1939	-9.1	15.6	-4.2	.8	-4.0	.3	-.6
1940	-13.5	19.6	.3	-3.4	-4.2	.4	-.8
1941	-18.2	23.1	2.2	-5.2	-2.4	1.2	.7
1942	-35.5	23.1	0	-2.9	0	0	-15.3

Federal government							
	$-\bar{g}$	$\bar{t}$	$-rd$	$-\pi d$	$-zGAP$	RPE	$\dot{B}$
1929	-2.9	5.3	-1.5	-.4	0	.4	.9
1930	-3.1	4.1	-2.6	.8	-1.1	.4	-1.5
1931	-2.7	4.1	-4.2	2.3	-2.2	.1	-2.6
1932	-2.3	4.9	-5.8	3.6	-3.1	0	-2.7
1933	-2.1	6.5	-3.0	.7	-4.1	0	-2.0
1934	-2.2	6.2	-1.6	-.6	-3.4	.1	-1.5
1935	-2.6	5.8	-1.8	-.2	-3.1	0	-1.9
1936	-2.4	6.9	-.5	-1.5	-3.1	.1	-.5
1937	-2.3	7.1	-.7	-1.1	-3.0	.1	.1
1938	-2.5	5.9	-1.6	0	-3.0	0	-1.2
1939	-2.9	7.0	-2.0	.4	-2.6	.1	0
1940	-8.1	10.3	.2	-1.8	-2.5	.2	-1.7
1941	-13.1	15.4	1.3	-2.9	-1.8	.8	-.3
1942	-31.0	16.0	.1	-1.8	0	-.1	-16.8

SOURCES: See appendix.

taxes-minus-transfers, defined as losses of government business enterprises plus the product of the output gap and the actual levels of revenue from cyclically sensitive taxes. The latter are defined as all direct and indirect taxes other than property tax. Expenditures on direct relief were *not* classified as cyclical in order to preserve comparability with the U.S.

estimates. The sum of the first four columns of Table 1 is the National Accounts budget balance as a percentage of potential GNP measured in constant dollars (1947 prices), while the sixth column (B) gives the nominal budget balance as a percentage of nominal potential GNP. The relative price effect (RPE) is the difference between B and the constant dollar budget balance. The sources of these estimates and further details concerning them are given in the appendix.

Turning to an examination of the data contained in Table 1, it can be seen that total real government spending on goods and services rose somewhat in 1930 but then fell from 12.7 per cent of potential GNP to 8.3 per cent in 1933. Government spending did not recover until the war years. The cuts in spending were most severe at the provincial and municipal levels, where education and road-building were especially badly hit (see Royal Commission on Dominion-Provincial Relations). Full employment taxes-minus-transfers also increased substantially after 1930, mainly at the federal level. Federal sales tax was increased from 1 per cent to 8 per cent, income tax rates rose, and tariffs increased very substantially. Relief expenditures, which peaked at 1.6 per cent of potential GNP in 1934, are treated as non-cyclical (i.e., included in $\bar{t}$), and so it could be argued that the increase in $\bar{t}$ up to 1934 is understated by this amount. With consumer prices falling by 23 per cent between 1929 and 1933, the inflation premium component of interest payments was negative over this period and then positive as prices recovered after 1933. As a result, real interest payments of government debt were extraordinarily high in the early thirties, peaking at 12 per cent of potential GNP (18 per cent of actual GNP) in 1932. Finally, because the government expenditure price deflator fell by less than consumer prices until 1932, the relative price effect shown in Column 6 declined until that year but then remained stable for the rest of the decade.

Fiscal impact and Canada-U.S. comparison

As indicated in the first section, estimates of the fiscal impact of the deficit ought to be based on a weighted average of the various components (see equation (4) above). The results of such an exercise are reported in Table 2 and Figure 1. The budget balances reported are defined as:

TABLE 2
Budget balances as percentages of GNP, selected averages 1929-42

	All governments			Federal government			Other governments		
	b1 US	b1 Cda	b2 Cda	b1 US	b1 Cda	b2 Cda	b1 US	b1 Cda	b2 Cda
1929	0	0	0	0	0	0	0	0	0
1930-2	-1.0	-1.0	-3.5	-1.3	-.6	-1.9	.3	-.4	-1.6
1933-6	.3	3.5	3.9	-2.1	1.3	1.3	2.5	2.3	2.6
1937-9	.9	3.9	3.7	-1.3	1.6	1.5	2.1	2.3	2.3
1942	-	-17.3	-16.4	-	-18.9	-18.3	-	1.6	1.9

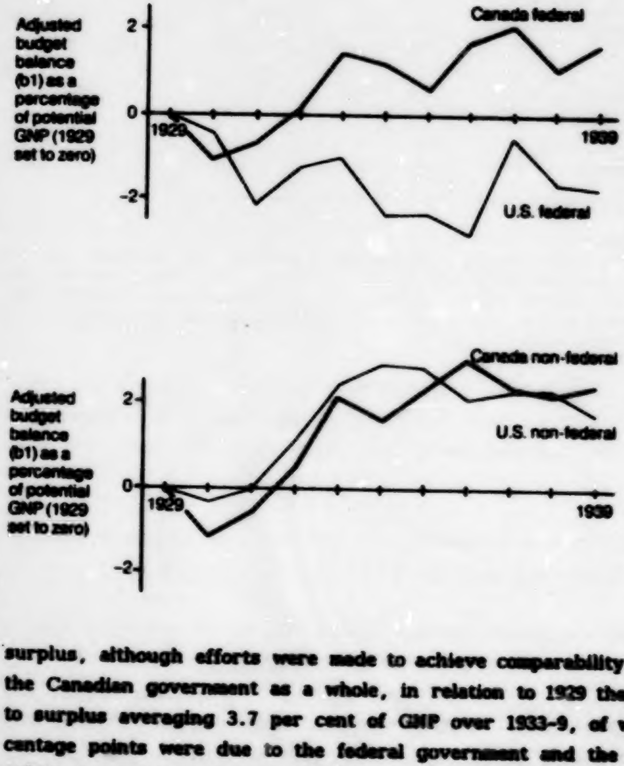
NOTE: 1929 set equal to zero.
SOURCE: Table 1, Brown (1956).

$$b1 = -g + .8[\bar{t} - (r+\pi)d],$$
$$b2 = -g + .8\bar{t} - .5rd.$$

The b1 measure was chosen because it was available for both Canada and the United States. The measure implies first round leakages to saving, imports, and taxes equal to 20 per cent of disposable income, an amount that would be too small today but perhaps not inappropriate for the thirties. The measure b2 differs from b1 in allowing for an inflation adjustment. The weight attached to πd is zero, while the weight applying to rd is .5. The latter figure is slightly less than the product of the coefficient on $\bar{t}$ (.8) and the proportion of government debt held by Canadian residents during the thirties (about 70 per cent). While b2 seems theoretically superior to b1, only the latter measure was available for the United States.

Figure 1 provides a Canada-U.S. comparison. It can be seen that while non-federal governments behaved in much the same (pro-cyclical) way in both countries, there was a marked difference between the two countries in terms of federal fiscal policy after 1932. In relation to a 1929 budget balance set to zero, the federal b1 over 1933-9 averaged a surplus of 1.4 per cent of potential GNP in Canada as compared with a 1.8 per cent deficit in the United States. The difference between the two is a rather substantial 3.2 per cent of potential GNP, or 4.7 per cent of actual GNP. It should be pointed out, however, that a part of this difference may be due to differences in the method of calculating the full employment

Figure 1
Fiscal policy in the thirties



surplus, although efforts were made to achieve comparability. In terms of the Canadian government as a whole, in relation to 1929 there was a shift to surplus averaging 3.7 per cent of GNP over 1933-9, of which 1.4 percentage points were due to the federal government and the remaining 2.3 points to provinces and municipalities. Finally, the inflation adjustment to the deficit gives rise to substantially larger deficits in 1931 and 1932 but makes little difference in the other years.

Alternative policies

To what extent would the Depression have been mitigated by more sensible discretionary fiscal policy and/or the existence of today's automatic stabilisers? Rough estimates of answers to these questions are given in Figure

TABLE 3
Estimated effects of alternative policies, 1932-9

	(Average values 1932-9, as percentages of GNP)				
	Actual	Case A	Case B	Case C	Case D
Output gap	33%	25%	23%	23%	19%
Budget balances, all governments					
(i) b2	1.8	-.7	-1.4	-1.5	1.8
(ii) Actual balance	-3.2	-4.8	-5.1	-5.5	-7.2
Current account	1.2	0	0	-.1	-.9

NOTE: The four cases are defined in the text, and the methods used to estimate these results are given in the appendix. The output gap and the adjusted budget balance b2 are given as a percentage of potential GNP, while the actual budget balance and the current account are given as a percentage of actual GNP.

2 and Table 3. In terms of discretionary policy, no changes are considered for 1930-1 (when most indicators suggest neutral or expansionary policy), but the following policy alternatives are considered for later years:

(a) government spending maintained at 1929 levels in relation to potential GNP (11.5 per cent) over the period 1932-9;

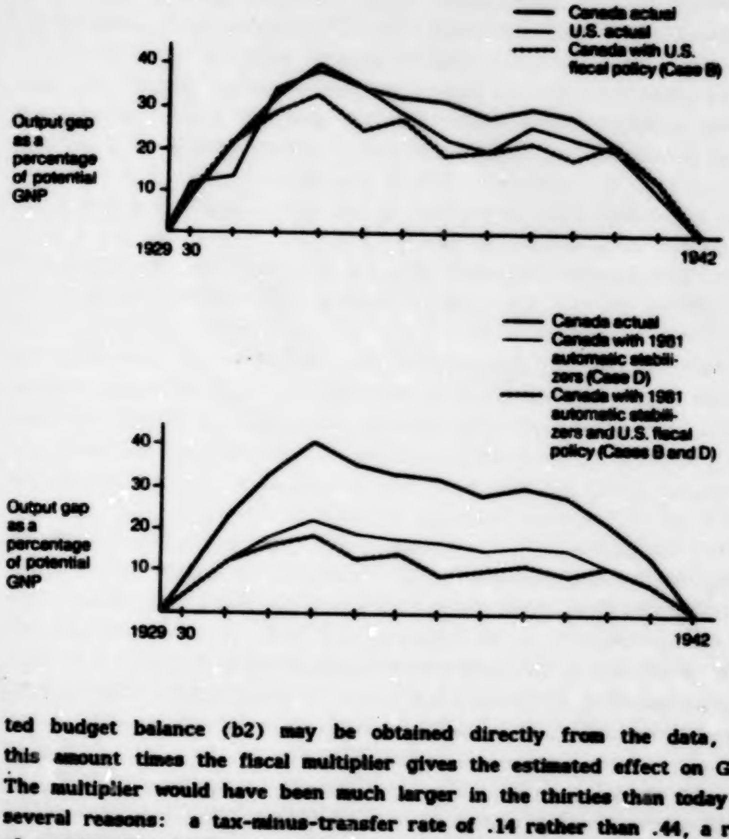
(b) federal full-employment budget balance (b1) set equal to U.S. federal balance (as per cent of potential GNP) over the period 1932-9;

(c) the all-government fiscal stance (b2) maintained at its 1929 level over the years 1933-9.

To examine the role of automatic stabilizers, it was supposed that discretionary policy remained unchanged, but the marginal tax-minus-transfer rate was set equal to .44 rather than its actual average value of .14. In other words, it was assumed that a one dollar fall in GNP gave rise to a 44-cent reduction in taxes-minus-transfers (as at the present time; see next section) rather than a 14 cent reduction. These four alternatives are respectively designated Cases A to D in Table 3.

For cases A to C, the impact of the alternative policies on the adjus-

Figure 2
Output gap under different policies, 1929-42



ted budget balance (b2) may be obtained directly from the data, and this amount times the fiscal multiplier gives the estimated effect on GNP. The multiplier would have been much larger in the thirties than today for several reasons: a tax-minus-transfer rate of .14 rather than .44, a ratio of merchandise imports to GNP of .13 rather than about .25, negative personal saving, and very little potential for crowding-out. Based on these facts and calculations, given in the appendix, it is suggested that an assumed government expenditure multiplier of three is not unreasonable for the 1930s. As is shown in Table 3, the three alternatives subtract 2.5 to 3.3 percentage points from the average value of b2 over 1932-9 and hence reduce the average output gap by 8 to 10 percentage points. Since the actual output gap averaged 33 per cent of potential GNP, the alternative policies would have reduced the impact of the Depression by a quarter to a third - not a huge effect but certainly significant. Also, it can be seen from Figure 2 that Canada's output gap would have followed that of the United States even more closely than it actually did if Canadian federal fiscal policy had been as expansionary as U.S. policy.

It would seem too that there were no overwhelming technical obstacles to such a policy. As is indicated in the table, the actual budget deficit for all governments combined would have increased from about 3 per cent of actual GNP to 5 per cent. The current account of the balance of payments would have been moved from an average surplus of just over 1 per cent of GNP to a position of balance. (See the appendix for the methods used to obtain these estimates.) It seems clear, then, that the barriers to such policies lay with the economic thinking and prevailing ideology of the day.

Had the automatic stabilizers of today existed during the thirties, the multiplier and hence the depth of the Depression would have been reduced by just over 40 per cent. The adjusted budget balance b2 would not have been changed, but the actual government deficit would have increased from an average of 3.2 per cent of GNP to an estimated 7.2 per cent over the period 1932-9. A final possibility to consider for the thirties is a combination of alternative discretionary policy plus present day automatic stabilizers. A combination of today's automatic stabilizers plus approximately neutral discretionary policy is about the policy combination being pursued in 1982, and so the impact of this combination on the Depression gives an estimate of what might have happened had fiscal policy as a whole been conducted along present-day lines. Allowing for the fact that the multiplier would have been smaller, a combination of Cases C and D would have reduced the average output gap from 33 per cent to an estimated 13 per cent of potential GNP. This suggests that the absence of both automatic stabilizers and a neutral discretionary fiscal policy made the Depression very much worse than it would otherwise have been. The impact would be even greater if one also allowed for a moderating effect of U.S. automatic stabilizers on the U.S. depression and hence on Canada.

Finally, we may turn the question around and ask how much worse the 1982 recession would have been had we followed 1930s-style fiscal policy. Assuming an actual 1982 output gap of 8 per cent of potential GNP, a shift to 1930s automatic stabilizers might have increased this to 11 per cent, while a shift to discretionary fiscal restraint of, say, 2 per cent of GNP might have increased the output gap by a further 4 percentage points. This implies a 12 per cent drop in real GNP in 1982 instead of the actual 5 per cent. The largest annual drop in real GNP recorded in the thirties was 13 per cent in 1931. These rough calculations suggest that the shock to the Canadian economy in 1982 may have been of the same order of magnitude as the shocks of the early thirties and that the difference in overall fiscal policy has been a key factor in explaining why the economy has not this time fallen into major depression.

THE POST-WAR PERIOD

This section begins by setting out estimates of government deficits and then turns to consider three issues: whether or not there is a 'structural' deficit, whether fiscal policy has been counter-cyclical, and what the consequences would have been if the government had not conducted discretionary counter-cyclical policy in the seventies but had instead followed a 'fixed fiscal rule.'

The estimates

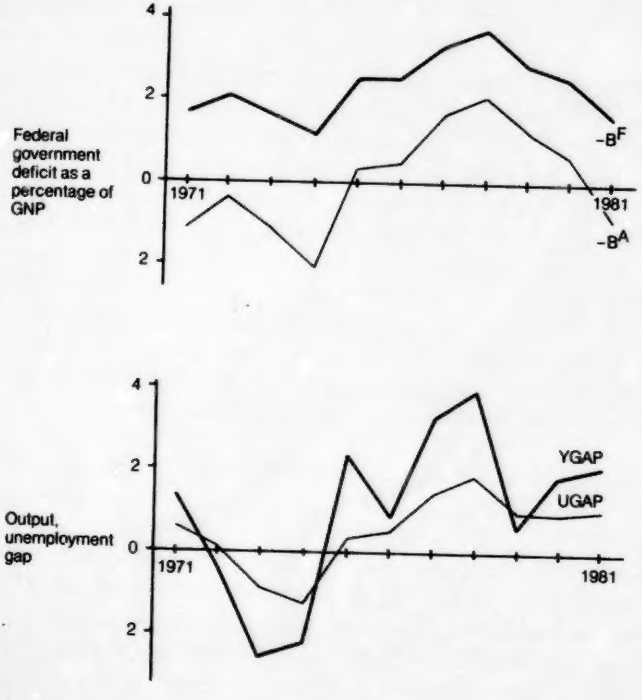
Table 4 sets out estimates of the components of government budget balances over the period 1971-81 (see the appendix for the same information over the period 1954-70). These estimates are given in the same form as the information for the thirties set out in Table 1, except that, for reasons to be discussed shortly, the components of the budget are given in nominal rather than constant dollar values. Two comments on the estimates may be made at this point, the first relating to the cyclical adjustment and the second to the relative price effect (RPE).

Originally, the intention was to use Department of Finance estimates of the cyclical adjustment, but for reasons discussed in the appendix the Finance estimates of potential GNP seemed unsatisfactory for the years after 1976. Consequently, the procedures used to calculate the cyclical adjustment were as follows: (i) estimates of the output gap were based on an Okun's Law relationship with the unemployment gap, as estimated by Fortin and Phaneuf (1979); and (ii) estimates of government revenue and unemployment insurance payments that would be forthcoming at potential output were based on Department of Finance information. The details of these procedures are set out in the appendix, and the estimates of the output gap are shown in Figure 3 below.

The second comment about the estimates has to do with the relative price effect shown in Table 4. In principle, government spending and revenue ought to be measured in real terms if one wishes to measure the impact of fiscal policy on aggregate demand, but in practice this is difficult to do because of the unsatisfactory nature of existing price indices for goods and services purchased by government. Because public sector output is difficult to measure, these indices are essentially based on the growth rate of public sector nominal wages, implying that there is zero productivity growth in the public sector. Thus the measured price of government output relative to private sector output has increased consistently over the post-war period by an amount averaging about 2½ per cent per year, or about the trend growth rate of private sector productivity. If one is considering periods of any length of time, this relative price effect tends to dominate the analysis: for example, the all government actual budget balance in 1981 was a deficit equal to 1.2 per cent of GNP in current dollars, but measured in 1971 dollars it was a surplus of 3.4 per cent of GNP (see Table 4). Thus the longer-term trend of fiscal policy on a constant dollar basis is bound to be in the direction of even larger surpluses.

In light of these considerations, it would seem that the nominal deficit provides a better indicator of fiscal stimulus or restriction than the constant dollar deficit. Certainly this would be the case if one were interested in the impact of policy on employment (as opposed to output). To the extent that the relative price effect comes from differences in recorded or actual productivity growth, a constant nominal adjusted deficit would imply a constant impact on employment, while other things being equal a constant real adjusted deficit would imply a steadily rising level of employment in the public sector. The nominal deficit would also rise if public sector wages rose relative to private sector wages (or vice versa), but this would not necessarily detract from the nominal deficit as a measure of fiscal stimulus, since a higher (lower) relative wage in the public sector may be seen as a transfer to (tax on) public sector workers, with the usual impact on aggregate demand. Thus, while both real and nominal budget balances are presented, it is felt that the latter gives the better measure of fiscal stance. In any case, the differences between the two are not critical to an evaluation of federal fiscal policy since 1970, which will be our primary concern.

Figure 3
Was fiscal policy counter-cyclical?



Is there a structural deficit?

As was indicated in equation (3) of the first section, the structural budget balance is given by the conventional inflation-adjusted budget balance (the sum of the first three columns of Table 4) plus an allowance for growth in the demand for real government debt as a result of economic growth plus an allowance for high-powered money creation. Assuming a long-run growth rate of 3 per cent and (for the sake of conservatism) a zero long-run inflation rate, these two adjustments increase the structural budget

TABLE 4
Components of government budget balances as percentage of potential GNP, 1971-82

All governments								
	$-G$	$\bar{T}$	$-rD$	$-\pi D$	$-zGAP$	B	RPE	b
1971	-23.3	28.0	-2.6	-1.2	-.7	.1	0	.1
1972	-23.2	27.2	-2.4	-1.6	.1	.1	.6	.7
1973	-22.7	26.6	-1.3	-2.7	1.1	1.1	.9	2.0
1974	-23.0	27.5	- .1	-3.6	1.1	1.9	2.1	4.0
1975	-23.8	26.1	-1.7	-2.2	-.9	-2.4	2.8	.4
1976	-23.5	26.5	-2.3	-2.0	-.4	-1.7	3.9	2.2
1977	-23.7	27.0	-2.5	-1.9	-1.3	-2.4	4.2	1.8
1978	-23.5	26.7	-2.8	-2.1	-1.5	-3.2	4.3	1.1
1979	-22.5	26.1	-2.4	-2.7	-.3	-1.9	4.1	2.2
1980	-22.6	26.6	-2.6	-2.8	-.8	-2.1	4.3	2.2
1981	-22.9	28.8	-3.0	-3.2	-1.0	-1.2	4.6	3.4
1982	-23.2	28.9	-4.2	-2.7	-3.7	-4.9		

Federal government								
	$-G$	$\bar{T}$	$-rD$	$-\pi D$	$-zGAP$	B	RPE	b
1971	-5.8	8.2	-1.3	-.8	-.5	-.1	0	-.1
1972	-5.8	7.4	-1.2	-1.0	.0	-.6	.2	-.4
1973	-5.7	7.2	-.5	-1.6	.8	.3	.2	.5
1974	-5.8	7.7	.2	-2.2	.9	.8	.6	1.4
1975	-5.7	6.2	-.9	-1.4	-.6	-2.3	.6	-1.7
1976	-5.7	6.5	-1.2	-1.2	-.3	-1.8	.8	-1.0
1977	-5.8	5.6	-1.3	-1.2	-.9	-3.5	.8	-2.7
1978	-6.0	5.2	-1.4	-1.4	-1.1	-4.6	.8	-3.8
1979	-5.2	5.0	-1.2	-1.9	-.3	-3.5	.7	-2.8
1980	-5.0	5.5	-1.2	-2.1	-.6	-3.5	.7	-2.8
1981	-5.3	7.6	-1.4	-2.6	-.6	-2.4	.9	-1.5
1982	-5.5	7.4	-2.4	-2.2	-2.7	-5.4		

NOTES $B = -G + \bar{T} - rD - \pi D - zGAP$; $RPE = b - B$; Symbols are defined as follows (all as percentages of potential GNP): G - nominal spending on goods and services; $\bar{T}$ - non-cyclical component of taxes minus transfers excluding interest on public debt; $(r + \pi)D$ - interest payments on public debt; $zGAP$ - cyclical component of taxes minus transfers; B - nominal budget balance; RPE - relative price effect; b - budget balance in 1971 dollars.

balance by 0.8 and 1.0 percentage points of GNP for the federal government and all governments respectively. Hence, using these figures plus the first three columns of Table 4, estimated structural balances as a percentage of potential GNP were as follows:

	Federal	All governments
1981	1.7%	3.9%
1982	0.3%	2.5%

For the federal government the estimated structural budget balance in 1982 is close to zero, while for all levels of government there is an estimated structural surplus of about $9 billion.

It might be useful to repeat what exactly these figures imply and to consider their sensitivity to alternative assumptions. If the structural balance is zero, the ratio of government debt to GNP is constant over time if: (i) the economy is operating at potential output; (ii) there are no changes in government spending relative to GNP or in the structure of tax and transfer regulations; and (iii) there are no changes in the exogenous factors that affect the cyclically adjusted budget balance. In the present Canadian context, the most important of these latter factors are probably the real interest rate that must be paid on government debt and the world price of oil.

Turning now to a sensitivity analysis, there are several factors that might be mentioned:

- The estimates of potential output are based on the assumption of a long-run unemployment rate of 6.6 per cent. Suppose instead that this rate is 7.5 per cent and that the economy was operating at full potential in 1981. In that case, the 1982 output gap would be 6.4 per cent, a number that is a very conservative estimate when it is recalled that real GNP fell by 5 per cent and that unemployment rose at an average rate of 3 per cent per year between 1971 and 1981. Under these conditions, the 1982 structural balances become a deficit of .3 per cent of potential GNP (about $1 billion) for the federal government and a surplus of some $6 billion for the government sector as a whole.

- If one assumes a long-run inflation rate of 5 per cent rather than zero, the additional high-powered money creation adds about $1 billion to the structural surpluses.

- Most of the 1981-2 reduction in structural surpluses resulted from an increase in the real interest rate that had to be paid on government debt. If real interest rates fall to historical levels, there will be a further increase in structural surpluses.

- On the other hand, under present regulations a fall in world oil prices would reduce government revenues, while the exclusion of the net income of government pension plans from the calculations, as suggested by Bossons and Dungan (1983), would subtract about one percentage point from the all-government surplus. The latter factor, however, would have a negligible effect on the federal balance. In any case, despite these qualifications, it seems clear that the government sector as a whole has a sizable structural surplus, while the federal government has close to a balanced budget.

Has fiscal policy been counter-cyclical?

A partial answer to this question is provided in Figure 3, which plots two alternative measures of the federal deficits as well as estimates of the output and unemployment gaps. Policy may be defined as counter-cyclical if the deficit increases as the output and unemployment gaps rise, and vice versa. The B^A series in Figure 1 is the conventional inflation-adjusted deficit as defined by equation (2) and as given by the sum of the first three columns of Table 4. The other series B^F is given by:

$$B^F = -G + .6\tilde{T} - .54rD,$$

where the weights of .6 and .54 are estimates of the fiscal impact of changes in taxes and real interest payments relative to a weight of one for government spending. The smaller weight on rD relative to $\tilde{T}$ reflects the fact that about 10 per cent of federal debt is held by foreigners. It can be seen that the two deficit series have moved in a similar fashion over the course of the past twelve years.

It is clear from the graph that federal fiscal policy has been strongly counter-cyclical. Deficits fell during the boom years 1972-4, and then rose as unemployment rose until 1978. Between 1978 and 1981 unemployment fell and so did the federal deficit, although the shift towards surplus in 1981 was pro-cyclical if one judges by the output gap series. Finally, the deficits measures rose in 1982, although by very little indeed in comparison with the size of the recession. For the period up to 1981, regression equations indicate very significant counter-cyclical policy: one-point increases in the unemployment and output gaps were associated with increases in the inflation-adjusted deficit ($-B^A$) equal to respectively 1.17 and 0.47 per cent of potential GNP. Similar, but somewhat smaller, responses apply to the weighted budget balance B^F. As indicated in the appendix, provincial fiscal policy was slightly pro-cyclical over this period, offsetting 10 to 20 per cent of federal actions. Fiscal policy between 1954-70 was, if anything, slightly counter-cyclical.

To judge the significance of these results, one may compare the roles of discretionary policy and automatic stabilizers. The results just noted imply that when GNP fell by one dollar, the non-cyclical federal deficit rose by 47 cents. This effect is greater than that of the automatic stabilizers of all levels of government combined. The joint impact of discretionary policy and automatic stabilizers was an increase in the federal deficit of over 70 cents for every dollar reduction in GNP relative to potential (and vice versa). Allowing for pro-cyclical provincial policy, the corresponding figure for provinces and municipalities was about 5 cents.

Three further points on this subject may be noted. First, the pattern of federal policy depicted in Figure 3 was not always the result of discretionary changes. For example, the tightening of policy in 1973-4 and the loosening in 1982 were largely the result of reductions and then increases in real interest rates - although one can always point out that the resulting change in the deficit was discretionary in the sense that nothing was done to offset the impact of the real interest rate changes. On the other hand, the stated reason for the shift to deficits in 1975 was a desire to stabilize the economy. The reduction in the deficits over 1979-81 may have been carried out partly as a result of a belief that the economy was strengthening, although anti-inflation efforts presumably played a role as well. In any case, the primary object is to examine the after-the-fact effects of federal policy rather than to ask whether the implicit fiscal role was in fact explicit.

A second point is that this counter-cyclical pattern does not prove conclusively that policy was stabilizing, because fiscal policy operates with a lag. This issue is taken up in the next section, which estimates the effect of a hypothetical non-cyclical 'fixed fiscal rule.' Third, it is clear that the implicit fiscal rule in operation between 1971 and 1981 was abandoned in 1982. What would have happened if fiscal policy in 1982 had followed the rule of the past decade, and is it too late to return to that rule in 1983? This question will be considered in the final section.

Consequences of a 'fixed fiscal rule'

What would have happened if all of the automatic stabilizers had remained in place but there had been no discretionary federal fiscal policy? To answer this question, we consider the case where the federal budget balance B^A is held at its average value of -0.7 per cent of GNP over the entire period 1971-81. This implies than taxes would have been raised (or spending reduced) in the years of deficits, and the opposite would have been true in the years of surpluses. Because most of the variations in federal policy have taken the form of tax or transfer changes rather than spending changes, it will be assumed that all of the adjustments to the deficit occur through tax changes.

Two estimates of the impact of such a fixed fiscal rule are presented. The first is based on simple formulas that have the advantage of being readily understandable, while the second estimate, based on the Informetrica econometric model, has the advantage of taking account of more complex interactions. The first set of estimates was derived from the following formulas:

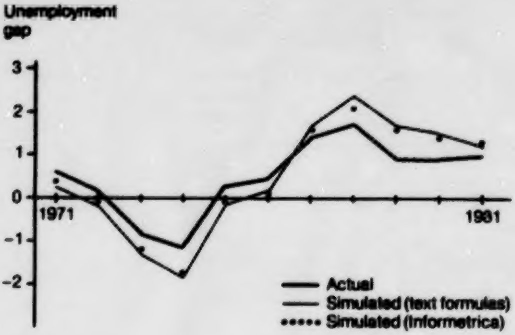
$$DT = \bar{B} - B, \tag{5}$$

$$DYGAP = -.6DT - .2DT_{-1} - .1DT_{-2}, \text{ and} \tag{6}$$

$$DUGAP = -.35\ DYGAP - .15\ DYGAP_{-1} - .10\ DYGAP_{-2}. \tag{7}$$

For each year, the change in taxes as a percentage of GNP (DT) was set equal to the mean value of the federal budget balance (-.7) minus the actual value. The impact of the tax change on output (DYGAP) is spread over three years, with a first-year multiplier of 0.6 and a cumulative multiplier of 0.9. The effects of output changes on unemployment (DUGAP) are also spread over three years, with first year and cumulative coefficients of .35 and .60. These coefficients are derived from several sources, including a comparison of the fiscal multipliers of the major Canadian econometric models given in Helliwell (1982). The coefficients are intended to represent the average of these models in terms of the effects

Figure 4
The fixed fiscal rule and the unemployment gap



of fiscal policy for a given money supply under flexible exhange rates. It can be seen that the assumed multiplier is rather low: less than 1.0 even after three years. This formulation does not allow for the likelihood that the size of multipliers will vary with the extent of economic slack.

The key results based on both methods are set out in Table 5 and Figure 4. The unambiguous conclusion is that the hypothetical fixed fiscal rule would have destabilized the economy to a very significant degree. Over the 1971-81 period, the unemployment rate would have ranged from a low of about 4.6 per cent in 1974 to a high of close to 9 per cent in 1978, rather than the actual range of 5.3 per cent to 8.4 per cent. The variability of the unemployment gap, as measured by its standard deviation, would have increased by a third to a half. Similar but somewhat smaller effects were found for the output gap. Also, according to the Informetrica simulations, provincial and municipal policy was very slightly destabilizing: if non-federal governments had followed the fixed fiscal rule rather than their actual policies, then the standard deviations of UGAP and YGAP would have been reduced respectively by 7 per cent and 3 per cent. It can be seen too that the two methods yield rather similar results, the main difference being the somewhat slower rise in unemployment after 1977 according to the Informetrica simulations.

A further point to note is that while the fixed fiscal rule would have involved no change in overall fiscal stimulus over the course of the eleven

TABLE 5
Effects of fixed fiscal rule and reduced automatic stabilizers on economic stability, 1971-81

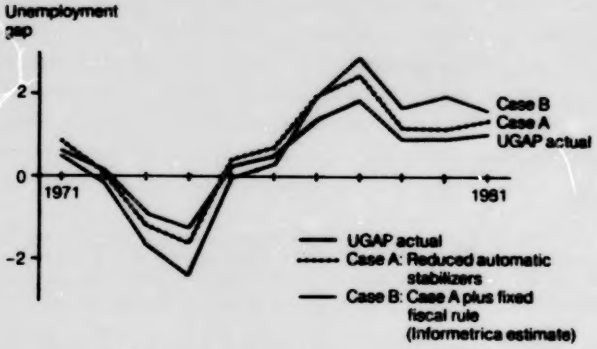
	Standard deviations, 1971-81			
	Actual	Fixed fiscal rule	Reduced automatic stabilizers	Combined case
A. UGAP				
Method A	.90	1.36	1.20	1.81
Method B	.90	1.21	1.20	1.61
B. YGAP				
Method A	2.03	2.82	2.64	3.76
Method B	2.03	2.59	2.64	3.45

NOTE: Under Method A, column 2 is estimated according to the formulas set out in the text, while under Method B column 2 is based on the Informetrica model. Under both methods, column 3 is one-third larger than column 1, while column 4 is one-third larger than column 2.

years as a whole, it might nevertheless have resulted in higher average inflation. This would have been the case if the lower unemployment rates in 1973-4 had added more to inflation than the higher unemployment rates of 1977-81 subtracted. In this sense federal fiscal policy has been anti-inflationary: for a given average level of stimulus, the counter-cyclical pattern actually followed was less inflationary than the alternative pattern implied by a fixed rule. The second and separate issue is whether the average level of stimulus was too much or too little, and that depends largely on the priority attached to inflation relative to unemployment as well as on questions of monetary-fiscal mix.

Finally, we may consider the joint impact of the fixed fiscal rule in conjunction with thirties-style automatic stabilizers, i.e., a marginal tax-minus-transfer rate of .14 rather than .44. As is discussed in the appendix, such a change may raise the multiplier by about one-third. Hence the unemployment gaps would also be inflated by one-third, as is shown in Figure 5. Then, if the fixed fiscal rule is imposed on top of the reduction in automatic stabilizers, the result is the Case B line of Figure 5 (based on the Informetrica results). The unemployment rate now peaks at over 11 per cent in 1978 and reaches a hypothetical low of 2.9 per cent in 1974 -

Figure 5
Effects of alternative fiscal rules on unemployment gap, 1971-81



hypothetical because inflationary pressures would probably prevent the economy from reaching such a low level of unemployment. As measured by the standard deviation of UGAP, the reduction in automatic stabilizers increases instability by a third to a half, the fixed fiscal rule by itself raises instability by a third, and the combined effect is to increase instability by 80 to 100 per cent.

The 1971-81 policy rule applied to 1982

The conduct of federal fiscal policy may be likened to an athlete who performs brilliantly during practice sessions, but then stays home on the day of the race. During the relatively mild ups and downs of the 1970s, federal policy exerted a helpful stabilizing influence, but when it came to the big recession the stabilizing patterns of the past were abandoned - the small increase in the adjusted federal deficit in 1982 was mainly the result of a non-discretionary increase in real interest rates. It may be interesting to ask what would have happened in 1982 if the federal government had continued to pursue the rule implicit in the fiscal policy of earlier years. It is not suggested that the federal government necessarily should have done this; and also, because the depth of the recession of 1982 was largely unanticipated in 1981, the government would probably have missed the target even if it had tried to follow the 1971-81 rule. Nevertheless,

TABLE 6
Implications of 1971-81 fiscal rule for key variables in 1982-4

Impact on:	1982	1983	1984
Unemployment rate	-.44	-.74	-.98
Real GNP (per cent)	+1.3	+1.6	+1.7
Adjusted budget balance (B^A) as per cent of GNP	-2.1	-2.0	-1.9
Actual budget balance as per cent of GNP	-1.6	-1.4	-1.2

NOTE: Based on fiscal rule $B^A = .37 - .47$ YGAP, plus equations (6) and (7) of the text, plus assumption that stimulus is entirely in the form of tax cuts. See the appendix for further details.

the results of this hypothetical exercise may be useful as a base case for discussion of present policy options.

The results of this exercise are set out in Table 6. Under the old fiscal rule, the 1982 unemployment rate would have been about half a point lower and real GNP 1.3 per cent higher. These effects would have increased to a one-point reduction in the unemployment rate and 1.7 extra points on GNP by 1984, assuming no private sector recovery (otherwise part of the fiscal stimulus would be automatically removed). But these rather modest effects would have required an increase in the 1982 deficit of just under $6 billion after taking into account induced changes in taxes-minus-transfers. Because of the low multipliers and the long lags between changes in policy and changes in unemployment, it takes a large increase in the deficit to achieve even a very modest reduction in the unemployment rate.

While the order of magnitude of these numbers is typical of Canadian econometric models, nevertheless several major points of qualification should be noted. First, the first-year output and employment effects would be at least double those shown in the table if the fiscal stimulus took the form of higher government spending rather than lower taxes. Second, while estimates such as those just given may be quite reliable during 'normal' years, 1982 was far from normal. I do not think (although I may be wrong) that any of the econometric models would have predicted anything like the unprecedented drop of 5 per cent in real GNP that was recorded in 1982. It seems likely that an explanation of 1982 will have to include a major exogenous shock to consumer confidence or security, possibly as a result of the sharp initial increases in unemployment and the unprecedented level of interest rates. It may be, then, that had fiscal policy moved early to provide some support to consumer spending or personal income, the shock to confidence would have been less and hence the multiplier effects greater than indicated in the table. A third and related point is that a substantial easing of monetary policy rather than fiscal policy may have been a more efficient and effective way of limiting the depth of the 1982 recession.

CONCLUSIONS AND POLICY CONSIDERATIONS

A common thread running through this paper has been the proposition that fiscal policy matters. Perverse discretionary policy and weak automatic stabilizers made Canada's Great Depression of the thirties a great deal worse than it would have been if today's policy environment had been in place at that time. Conversely, a counter-cyclical federal fiscal policy in conjunction with the automatic stabilizers has made a major contribution to economic stability since 1970.

A summary of the quantitative estimates of these effects is set out in Table 7. The Depression was an estimated two and a half times as bad as it would have been in today's fiscal environment, suggesting that that environment provides considerable protection against a repeat of the 1930s. The results also suggest that the economy of 1971-81 would have been considerably less stable under neutral discretionary policy and 1930s-level automatic stabilizers. While there is widespread acceptance of the beneficial effects of automatic stabilizers, a key point to emphasize is that over the period 1971-81 discretionary federal fiscal policy contributed at least as much to stability as did the automatic stabilizers of all levels of government combined.

Two other conclusions may be singled out. First, there is no structural deficit at the federal level, and there is a sizable structural surplus for all levels of government combined. This conclusion, in sharp contrast to the American situation, is very similar to that of Bossons and Dungan (1983) and Rousseau (1983), despite considerable differences in methodology between the two papers. A third point to emphasize is that according to conventional estimates, even a very large tax cut in 1982 (say $10 billion) would have had only a modest braking effect on the recession.

TABLE 7
Summary of effects of fiscal policy in the 1930s and 1970s

	Average output gap, 1930-9 (Actual=100)	Standard deviation of output or unemployment gap, 1971-81 (Actual=100)
Actual discretionary policy and automatic stabilizers	100	100
A. Neutral discretionary policy	70	130-150
B. Reverse stabilizers[a]	60	130
C. Combined case (A+B)	40	170-200

[a] That is, actual discretionary policy + 1970s automatic stabilizers in the thirties and 1930s automatic stabilizers in the seventies.
SOURCE: Tables 3 and 5.

Despite considerable grounds for scepticism regarding such conventional estimates in the unconventional environment of today, this does suggest that straightforward tax cuts in 1983 may have to be very large to have much short-term effect on unemployment.

Longer-term issues

If one ignores the current recession for a moment and focuses on longer-term issues, I think that the findings of this paper provide considerable support for continuing with counter-cyclical fiscal policy. As noted above, this is quite distinct from the inflation issue, as it relates to the variability of fiscal stimulus rather than its average level. The desired average level of stimulus depends partly on inflation-unemployment priorities and partly on the desired monetary-fiscal mix.

Given the case for counter-cyclical fiscal policy, a key issue concerns rules versus discretion. Some readers may accept the evidence that discretionary federal policy was stabilizing in the seventies, but question whether we should count on such good foresight and/or luck in the future. If this is the case, then it may be desirable to obtain the same effects of the implicit discretionary federal rule of 1971-81 by non-discretionary means. This would imply an increase in the role of automatic stabilizers, and it would have to be a very large increase indeed if the object was to replicate the implicit rule of the seventies. One possibility that would go a long way in this direction would be to make unemployment insurance premiums depend negatively on the unemployment rate, although recent changes in regulations in this area have moved the other way. Another possibility would be a variable period of eligibility for collecting unemployment insurance, where the period would be a regionally sensitive function of the unemployment rate. Yet another possibility is an investment funds system like the one operated in Sweden, which has recently received a favourable evaluation by Taylor (1982). Another longer-run issue that may be noted in passing is the old question of whether the provinces should play a more active counter-cyclical role or at least refrain from the pro-cyclical policy that has often characterized the past.

Present policy

The remainder of the paper will outline a possible policy package for the present and then comment on likely objections to the proposals. What I would suggest is essentially a temporary increase in automatic stabilizers or a fiscal stimulus whose size is made contingent on the strength of the economy over the coming months. For example, the government could cut sales tax by an amount initially set at, say, $5 billion, but the amount of the tax cut could be adjusted automatically at quarterly intervals according to a formula based on economic indicators such as the unemployment rate or the level of industrial production. If there were a rapid recovery, part or all of the tax cut would automatically be removed, and vice versa. It would be possible to tie the stimulus to an indicator of inflation or wage settlements in order to allay fears that the fiscal stimulus would be inflationary. Of course, the principle of a fiscal stimulus contingent on the speed of recovery and/or inflation could be applied to measures other than sales tax cuts. Also, the principle could either be applied on a temporary basis, perhaps as a tax cut for one year but subject to quarterly revisions, or become a permanent addition to the stock of automatic stabilizers.

As already noted, even a substantial tax reduction may not give much short-term improvement in employment. Thus the tax cut could be supplemented by explicitly temporary (or unemployment-contingent) increases in government spending on public works and other projects. Also, tax relief could be directed to those likely to have high spending propensities, e.g., an unemployment-contingent extension of the period of eligibility for unemployment insurance benefits.

Finally, let us briefly consider possible objections to proposals of this kind:

- The higher deficit may crowd out private spending through higher interest rates or an exchange rate appreciation. This depends in part on monetary policy, which, I would argue, should act to prevent such developments in the present context. In any case, despite the record government deficits in 1982, the current account of the balance of payments moved sharply into surplus, implying an increase in national saving relative to financing requirements. Also, with the fiscal stimulus contingent on the speed of recovery, the danger of future crowding-out would be alleviated.

- The idea that government debt will eventually be monetized applies to the case of a structural deficit. The fiscal stimulus described above would not raise the structural deficit.

- Fiscal stimulus is sometimes associated with increased government intervention or size of government, but this need not be the case.

- There are those who argue against an increase in the deficit because a strong recovery is supposedly under way, and there are those who argue against a higher deficit because they do not expect the economy to recover at all (and hence there is a structural deficit). There are even those who argue both points at the same time (e.g., Hugh Anderson of the Montreal Gazette). The first point is taken care of by the indexing provision, while the second point may be countered on several different grounds.

- Finally, higher deficits may have a negative effect on business confidence. It seems, however, that several Canadian business associations are now themselves recommending a 'moderate' fiscal stimulus and that an explicit indexing of tax cuts to the state of the economy and/or inflation would go a long way in dampening concerns. Finally, at this stage of the business cycle consumer confidence is probably more important than business confidence, and it seems difficult to believe that tax cuts directed at consumers would cause a reduction in their 'confidence.'

APPENDIX

Several items in the text have been referred to the appendix, and the order of presentation will correspond to the order in which the points were raised in the text.

Budget balances 1929-42 (Table 1)

Unless otherwise indicated, all data were taken from Statistics Canada, *National Income and Expenditure Accounts*, Vol. I, 1926-74. The components of the budget are defined as follows:

g - Government spending on goods and services in 1947 dollars (current expenditures and capital expenditures each deflated by corresponding implicit price deflator) as a percentage of potential GNP in 1947 dollars.

$\bar{T}$ - ZGAP - Total taxes minus transfers excluding interest on public debt (nominal values deflated by consumer expenditure implicit price deflator, 1947=100) as a percentage of potential GNP in 1947 dollars. The cyclical component consists of losses of government business enterprises plus the product of the output gap and cyclically sensitive taxes, defined as all direct and indirect taxes other than property tax. The non-cyclical component is the residual.

$(r+\pi)d$ - Interest payments on national debt (deflated by consumer expenditure price deflator, 1947=100) as a percentage of potential GNP in 1947 dollars. The inflation premium component is defined as the inflation rate (as defined by the GNP deflator) multiplied by a measure of real government debt (nominal debt deflated by consumer expenditure price deflator). Debt figures, not all fully comparable, were taken from various issues of the Canada Yearbook.

Alternative policies in the thirties (Table 3)

To obtain the effect of alternative fiscal policies on the output gap, we need an estimate of the fiscal multiplier. In general, the multiplier (M) may be written:

$$M = [1 - c(1-m)(1-t) + x]^{-1},$$

where c, m, and t are the marginal propensities to consume, import, and tax, and x is all other factors influencing the multiplier (crowding-out effects, accelerator effects, etc.). If we assume present-day values of M = 1.5, c = .85, m = .25, and t = .44, it follows that the present-day value of x is .02. If we now assume 1930s values of c = .9, m = .125, and t = .14, it follows that if x remains equal to .02 the multiplier becomes 2.9, which has been rounded up to 3. The effects on the actual budget balance shown in Table 3 are given by .58 times the increase in the adjusted balance, where the figure of .58 [= 1 - (3x.14)] allows for an induced rise in tax revenue. The actual budget balances as percentages of actual GNP are obtained by dividing the balances as percentages of potential GNP by (1 - YGAP). Finally the current account estimates are based on the assumption that m = .125.

Budget balances, 1954-70

These are set out in Table A1, which is based on the same definitions and methodology as Table 4.

Output gap estimates

The Department of Finance estimates of the output gap for 1978-82 were as follows (taken from 'Cyclical and Inflation Adjustment of Government Deficits', 11 January 1983, mimeograph):

1978	1.5%
1979	1.8
1980	4.4
1981	4.2
1982	10.6

A key ingredient in these estimates is an assumption about the trend rate of growth of productivity, a point on which there is a very large amount of uncertainty. I was puzzled by these figures primarily because 1979 was a year of near-record high employment growth (4.0 per cent) as well as a substantial decline in the unemployment rate (from 8.4 per cent to 7.5 per

TABLE A1
Components of government budget balances, as percentage of potential GNP, 1954-70

All governments

	-g	$\bar{t}$	-rd	-πd	-zGAP	B
1954	-17.8	19.4	-1.5	-1.0	-.4	-1.1
1955	-17.9	19.4	-2.0	-.4	.7	.0
1956	-18.4	19.8	-.4	-2.0	1.7	1.0
1957	-17.9	19.5	-1.3	-1.1	.6	.0
1958	-17.9	18.0	-1.6	-.8	-.6	-3.1
1959	-17.5	19.5	-1.7	-1.0	-.8	-1.6
1960	-17.2	19.4	-2.1	-.7	-1.3	-1.8
1961	-19.0	21.7	-2.7	-.2	-1.9	-1.9
1962	-19.3	21.6	-2.3	-.7	-.9	-1.6
1963	-19.1	21.5	-2.1	-1.0	-.6	-1.3
1964	-19.0	22.2	-1.9	-1.2	.0	.2
1965	-19.7	22.8	-1.5	-1.6	.4	.4
1966	-20.9	23.7	-1.1	-2.0	1.0	.7
1967	-21.4	24.3	-1.5	-1.7	.3	.2
1968	-21.8	25.6	-1.9	-1.4	.3	.7
1969	-21.9	27.5	-1.7	-1.8	.5	2.4
1970	-22.7	27.8	-2.5	-1.3	-.5	.9

Federal government

	-g	$\bar{t}$	-rd	-πd	-zGAP	B
1954	-9.4	11.4	-1.0	-.8	-.4	0
1955	-9.1	10.8	-1.5	-.3	.7	.7
1956	-8.9	10.9	-.1	-1.6	1.7	2.0
1957	-8.3	10.4	-.8	-.8	.6	.9
1958	-8.1	8.3	-1.1	-.6	-.6	-2.3
1959	-7.4	9.1	-1.2	-.7	-.5	-.8
1960	-6.7	9.1	-1.4	-.5	-1.0	-.5
1961	-7.0	9.4	-1.8	-.1	-1.7	-1.0
1962	-6.7	8.2	-1.5	-.5	-.7	-1.1
1963	-6.1	8.1	-1.3	-.7	-.6	-.6
1964	-5.9	8.5	-1.1	-.8	0	.6
1965	-5.8	8.4	-.9	-1.1	.4	.9
1966	-6.1	7.6	-.6	-1.3	.8	.3
1967	-6.1	7.6	-.8	-1.1	.3	-.2
1968	-6.1	7.8	-1.1	-.9	.1	0
1969	-6.0	8.9	-.9	-1.1	.4	1.3
1970	-5.8	8.5	-1.3	-.9	-.3	.3

NOTES: - B = -G + T -rD - πD - ZGAP. Symbols are defined as follows (all as percentages of potential GNP): G = nominal spending on goods and services; T = non-cyclical component of taxes minus transfers excluding interest on public debt; (r+π)D = interest payments on public debt; ZGAP = cyclical component of taxes minus transfers; B = nominal budget balance.

cent), while employment rose at approximately average rates in 1980-1 (2.8 per cent and 2.6 per cent respectively) and the unemployment rate remained quite stable. Thus, in terms of the employment record or an Okun's Law relationship, one should certainly find a lower output gap in 1979-81 than in 1978. The contrary results shown above result from Canada's exceptionally low (negative) productivity growth over this period in combination with the assumption that 'trend' productivity growth was not so low. However, it seems difficult to make the case that productivity growth in 1979-81 was low for cyclical reasons, since employment was rising rapidly over this period.

Consequently, the output gap series used in the text has been based on a method that does not force one to make assumptions concerning trend productivity growth. Specifically, given the following Okun's Law equation:

$$UGAP = .35YGAP + .15YGAP_{-1} + .10YGAP_{-2},$$

together with UGAP numbers from Fortin and Phaneuf (1981) and Department of Finance YGAP numbers for 1969 and 1970 (-1.0 per cent and 1.6 per cent respectively), it is possible to construct a YGAP series for 1971-82. The Department of Finance estimates of cyclically adjusted tax revenue were adjusted to conform with the new YGAP series, as given by:

1971	1.3%	1975	2.2	1979	.6
1972	-.5	1976	.8	1980	1.8
1973	-2.6	1977	3.1	1981	2.0
1974	-2.2	1978	3.8		

Note that the effect of this change in YGAP series is to reduce the estimates of structural surpluses in 1981-2. On the other hand, fiscal policy becomes pro-cyclical in 1980-1 if one uses the Department of Finance output gap series.

Effect of reduced automatic stabilizers (Table 5)

According to the multiplier formula given above (Item 2), if all of the present-day assumed coefficients are unchanged except t (which is reduced from .44 to .14), then the multiplier rises from 1.5 to 2.1, or by somewhat more than the one-third increase assumed in the text.

Regression results

These results are based on B^A as defined in equation (2), with FBA, and NFBA denoting respectively the federal B^A and non-federal B^A. 'Non-federal' includes provincial and local governments as well as CPP/QPP. The results for 1971-81, with t-statistics in brackets, were as follows:

$$\text{FBA} = .37 - .47\text{YGAP} \qquad \text{DW} = 1.24 \quad \bar{R}^2 = .50$$
$$(1.2)\ (3.3)$$

$$\text{FBA} = .50 - 1.17\text{UGAP} \qquad \text{DW} = 1.09 \quad \bar{R}^2 = .63$$
$$(1.8)\ (4.2)$$

$$\text{NFBA} = 1.71 + .07\text{YGAP} \qquad \text{DW} = 1.21 \quad \bar{R}^2 = -.06$$
$$(7.8)\ (.6)$$

$$\text{NFBA} = 1.67 + .22\text{UGAP} \qquad \text{DW} = 1.34 \quad \bar{R}^2 = .00$$
$$(7.6)\ (1.0)$$

The corresponding equations for 1954-70 were:

$$\text{FBA} = .90 - .10\text{YGAP} \qquad \text{DW} = 1.86 \quad \bar{R}^2 = .07$$
$$(5.3)\ (1.5)$$

$$\text{FBA} = .95 - .30\text{UGAP} \qquad \text{DW} = 1.92 \quad \bar{R}^2 = .18$$
$$(5.8)\ (2.1)$$

$$\text{NFBA} = .03 + .03\text{YGAP} \qquad \text{DW} = .23 \quad \bar{R}^2 = -.06$$
$$(.14)\ (.3)$$

$$\text{NFBA} = .02 + .26\text{UGAP} \qquad \text{DW} = .28 \quad \bar{R}^2 = .06$$
$$(.1)\ (1.4)$$

TABLE A2
Unemployment under a fixed fiscal rule

	Unemployment rate			UGAP		
	Actual	Simulated		Actual	Simulated	
		A	B		A	B
1971	6.2	5.9	6.0	.6	.3	.4
1972	6.2	5.9	6.0	.1	- .2	- .1
1973	5.5	4.9	5.1	- .9	-1.5	-1.3
1974	5.3	4.3	4.7	-1.2	-2.2	-1.8
1975	6.9	6.5	6.5	.3	- .1	- .1
1976	7.1	6.9	6.8	.5	.3	.2
1977	8.1	8.3	8.1	1.4	1.6	1.4
1978	8.4	9.1	8.7	1.8	2.5	2.1
1979	7.5	8.1	7.9	.9	1.5	1.3
1980	7.5	8.1	8.0	.9	1.5	1.4
1981	7.6	7.8	7.8	1.0	1.2	1.2
Standard deviation	1.03	1.53	1.33	.90	1.36	1.21

NOTE: Simulation A is based on the formulas set out in the text, while simulation B is based on the Informetrica model.

Fixed fiscal rule

The actual and simulated values of U and UGAP are set out in Table A2.

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The underlying and unifying theme of Professor McCallum's paper is that fiscal policy 'matters.' The paper is strongly Keynesian in tone, and its conclusions are most applicable to a world of low aggregate demand, no supply restrictions, and high unemployment. But these conclusions are not necessarily applicable to a world in which inflationary expectations have a role in determining real interest rates - a world in which behaviour has been altered by recent experience with high and rising inflation rates. I think Professor McCallum's failure to take the effect of this experience into account is a major weakness in his paper.

I will confine my comments to the major analytical and policy issues that, in my view, arise in Professor McCallum's paper.

The paper's first major conclusion is that from an analytical point of view, fiscal policy exacerbated the Depression of the 1930s. Discretionary policy was perverse, on balance, and the automatic stabilizers built into the economy were weak - relative at least to those present in today's economic environment.

I would not quarrel with this finding. It is, after all, the tenet upon which Keynesian economic theory is based. Nevertheless, current economic thought and policy are too strongly wedded to the idea that the policies that should have been pursued half a century ago are still valid in today's economic environment. While the fiscal policies of the 1970s and early 1980s might have alleviated the Depression of the 1930s, it is not clear to me that such policies have in fact alleviated the recent recession. Indeed, these policies may have deepened and prolonged the recession.

A second key conclusion of the paper is that there is no structural deficit at the federal level and that for all governments combined there is a substantial full-employment surplus. This conclusion is loaded with implications, not all of them clearly stated. One very relevant and important implication is that there is substantial room right now for fiscal stimulus through higher discretionary expenditures and/or through tax cuts, at least at the provincial level and probably at the federal level as well.

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Indeed, the paper goes further than this. When one disentangles the details of the analysis, it seems that Professor McCallum is arguing that his estimates of the full-employment balance or surplus are conservative because he has biased some of his key assumptions so as to make his calculations understate government surpluses. For example, he argues that the reduction that occurred in structural surpluses in 1981 and 1982 was partly due to the sharp rise in real interest rates payable on the public debt. _If_ real interest rates fall back to historical levels, the paper argues, the current deficit will largely disappear.

This argument, it seems to me, views real interest rates as some sort of exogenous variable that affects government fiscal requirements, but that is not in turn affected by them. In my view, however, the causality also runs in the opposite direction. The inflationary expectations generated by huge actual government deficits directly and indirectly push real interest rates upward, further raising actual deficits. The high real interest rates resulting from such expectations raise household savings rates and reduce investment expenditures, and thus hold back economic recovery. In other words, real interest rates may not fall at all - especially if government deficits rise further. The U.S. economy is in this vicious circle right now.

On the other hand, the paper argues, _if_ oil prices fall, this will reduce government revenues and raise the prospect of structural deficits in future. While Professor McCallum describes this structural dependency upon rising oil prices 'negligible,' he cannot know for sure that it is negligible. He does not know how sharply and how far oil prices may fall in the near-term future.

It is not clear, therefore, that he has underestimated the structural surplus. He may well have overestimated the surplus.

A third key conclusion of Professor McCallum's paper is that federal fiscal policy has been counter-cyclical on balance in the postwar period and especially since 1970. Professor McCallum's conclusions here support the discretionary fiscal policy of the past decade, and they appear to make a case for increasing the stabilizing role of fiscal policy in the future - but Professor McCallum would do so mainly by increasing the strength and responsiveness of the built-in stabilizers. The support for continuing with counter-cyclical fiscal policy while moving towards more automatic stabilization and relatively less discretionary stabilization is perhaps a recognition that the lead times of discretionary policy responses to falling output and employment are longer than the lead times of automatic or built-in responses. He also has a feeling that discretionary policy may be applied less 'accurately' in future.

Professor McCallum's policy recommendations echo this shift in emphasis. For example, he suggests that the automatic stabilizers be made more potent in future, but that they also be tied to various indicators of economic recovery, such as the speed of recovery. This would counter the objections of those who believe that economic recovery is already underway.

While this is an interesting variation on the theme that fiscal policy is the critical stabilizer (the paper virtually ignores monetary policy), Professor McCallum does not provide any support for a market response to recession. He is a strong advocate of fiscal stabilization, and a key feature of the paper is a greater emphasis on automatic than on discretionary fiscal measures. But a third option, where market forces prevail and the economy takes its lumps swiftly, is not analyzed at all. Perhaps that sort of economic environment would, in fact, be the best option for the future. Who knows for sure? What one can say is that the stabilization policies that emerged from the experience of the 1930s depended heavily upon money illusion. The role of inflationary expectations and the greater sophistication of market behaviour today have probably reduced the beneficial impact of these stabilization measures.

In summary, Professor McCallum's analysis is, perhaps, at least as interesting for the questions it raises as it is for the questions it attempts to answer. It is a useful jumping-off point for a more in-depth analysis of our continuing preoccupation with economic stabilization measures - a preoccupation that may be undermining the market economy and limiting our medium-term growth prospects.

Discussion

MODERATOR: I think while one or two of you are formulating questions we should give John McCallum at least one minute to respond to the man from Missouri. Do you want to do that, John?

JOHN MCCALLUM: Yes, please. First, I did not say, or I did not mean to say, that oil price increases would have a negligible effect on the deficit. Second, Robert's remarks seem to ignore the point that the counter-cyclical policy does work both ways. It's not just a matter of pumping up the economy during the bad times: it's also a matter of pumping it down during good times, and I am advocating something that would be balanced over the cycle as it appeared to be in the seventies. I think one has to look at the matter both ways and not focus in one direction.

Third, my proposals for the current situation do not involve any change in the structure of deficit, assuming such a thing exists. They are explicitly temporary, and the indexing formula thrown in increases that temporariness.

Fourth, I've nothing against the market system - in fact I'm for it - but I don't see why the counter-cyclical policy and the market system cannot work together as they did in the seventies. Clearly, the market system has not always performed very well, such as during the 1930s. My policies do not necessarily involve any increase in the role of government, because a counter-cyclical policy could be performed entirely through changes in tax transfers, with no changes in government spending on goods and services.

Finally, I don't see how a counter-cyclical policy, whether it is discretionary or not, rests in any way on money illusion.

QUESTION: My first question is about the various hypothetical experiments that changed the world of the thirties, or changed the world of the seventies, to then ask what happens in that world. What kind of a model do we have lying behind those calculations? I didn't see an explicit model in the paper and I didn't hear any model mentioned in the discussion, other than the Informetrica model. My suspicion is that we have a model that is a variant of what I call the Keynesian-cross view of the world - that is, a model that generates output by fluctuations in an aggregate expenditure function, the slope of which depends on things like the propensity to consume, the propensity to pay taxes and pay benefits, and so on. It's a model in which the monetary sector is either very primitive or totally suppressed in the sense that the stock of money is a completely accommodative variable. I wonder if we could be told whether that is the case. Or am I misinterpreting the monetary aspects of these experiments?

This raises a related question. We do know that we did not have sensible monetary policy in the 1930s and that it wasn't all that hot in the 1970s either. Could we not with sensible monetary policy do even better these things we can allegedly do with fiscal policy? And isn't it indeed the case that we are rather overdrawing what we can gain from fiscal policy by analyzing it in an environment that is simply too naive in its treatment of the monetary sector?

My final question is very brief. I was struck by the first two figures in the paper. The first figure showed the output gap in the United States and Canada during the Depression. The second figure showed fiscal policy in the two countries. The output gaps were identical; fiscal policies were very different. As a non-fiscalist sort of monetarist, I took a lesson from that, namely that fiscal policy perhaps is not all that important. How do you interpret the equal performance of the two economies in terms of real output gap and the very different fiscal policy performance?

JOHN MCCALLUM: The rule of thumb method that I used was based on the average of multipliers of Canadian econometric models as summarized by John Helliwell, all of which were based on the assumption of a flexible exchange rate and a fixed money supply. So they do incorporate the monetary sector, although to varying degrees of completeness. My results reflect that average.

Aggregate supply also responds in these models, although not perhaps as much as you might like. The multipliers are small, on the assumption that the stabilization is performed through tax or transfer changes, not through government spending changes. The first year multiplier is on the order of .5 and over three years still less than one. So they are small multipliers, as you would expect under a flexible exchange rate regime. But the shifts have been large, and so the effects, while not dramatic, have been significant. That the instability is reduced by approximately one-third is not dramatic, but it is significant.

Regarding the role of monetary policy, as I've just said, the working assumption is that the money supply is held fixed, and so these experiments are for fixed money supply.

I would agree that some of the stabilization should have been done by the monetary people, but the problem is that they haven't been very good at it. Look at 1982, when real GNP fell by close to 5 per cent. I would argue that a lot of that fall, especially in view of the difference between what happened in Canada and in the United States, was the result of a very substantial tightening of monetary policy in 1981, which led to interest rates of over 20 per cent. It would have been asking far too much of fiscal policy to try to moderate that drop very much, given the stance of monetary policy. I would certainly agree that we should try to have a good monetary policy in addition to good fiscal policy.

The final point was about the 1930s. The divergence between Canadian and U.S. deficits did not occur until after about '32 or '33, and so in fact the questioner's point supports my case rather nicely. If, in the thirties, you had held the automatic stabilizers constant and done no more than make federal fiscal policy in Canada the same as federal fiscal policy in the United States, then the Canadian economy would have recovered faster and followed the U.S. output gap even more closely than it did. My second experiment introduced automatic stabilizers to the thirties equal to those of the eighties. Clearly the two countries' gaps in that case are not comparable, unless those automatic stabilizers are introduced in the United States as well in the 1930s. This would have meant a further favourable effect on Canada, because with American output higher as a result of that country's automatic stabilizers our output would have remained higher whether we had had automatic stabilizers or not.

Fiscal discipline and rules for controlling the deficit: some unpleasant Keynesian arithmetic

Neil Bruce and Douglas D. Purvis*

Commitment is no less important in affairs of state than in other human affairs. For our purposes, a commitment is a pledge to pursue a particular course even when circumstances change and alter the costs involved. The abiding enemy of commitment is opportunism, often proclaimed as pragmatism. Under any guise, opportunism is the taking of actions strictly on the basis of immediate costs and benefits, regardless of existing arrangements and sometimes regardless of future consequences.

We want to argue the need for commitment in the conduct of fiscal policy - commitment in the form of fiscal policy rules. These are promises to pursue certain courses of action, particularly with respect to the deficit, even when it is politically opportune to renege. We focus our remarks on the design and desirability of rules rather than on their political enactment. Rules must somehow be entrenched through the political process, but we will leave this question for further discussion.

After making the case for fiscal policy rules, we discuss some aspects of the design of such rules. In the final section we relate fiscal rules to monetary policy and, especially, disinflation.

THE CASE FOR FISCAL RULES

To develop the case for rules, we first consider the capacity of fiscal policy; that is, what can fiscal policy do, and what should it do? We go on to argue the need for fiscal prudence, and then discuss some political or ideological aspects of fiscal rules.

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The impact of fiscal policy

We believe the evidence is persuasive that fiscal policy matters for the short-run determination of income and prices. This is true even if the policy is anticipated and even with due consideration for the openness of the Canadian economy. Nevertheless, the effects of fiscal policy are likely to be far less predictable and mechanical than the conventional macroeconomic methodology suggests. This methodology presumes a controllable economy operating independently from, but affected by, the fiscal policies followed. In policy analysis use is made of fiscal policy multipliers, which are correlations between fiscal policy changes and private expenditure derived from historical time series data. These multipliers are used to determine an appropriate discretionary policy given a particular GNP target.

Our skepticism about the usefulness of such an approach is based on the fact that the 'all other things held constant' experiments supposedly extracted from the data are ill-defined. This is the well-known 'Lucas Policy Critique' (see Lucas 1975). The experiments would be well-defined if the economy were populated by myopic agents who spent a predictable fraction of their disposable income. But we believe that the effect of fiscal policy on private spending cannot be derived, even to a first approximation, without considering the effects of the policy on private expectations about future taxes, future expenditures, and future monetary policy.

To illustrate, consider the polar case of a 'rational economy' populated by rational maximizers with perfect foresight and access to a well-functioning capital market. In such an economy, private expenditure would be based not on current disposable income but on long-run disposable wealth. As a result, income tax and transfer policies - and the deficits they caused - would be irrelevant for stabilization purposes. Present and future taxes would be equivalent, and deficits would simply be promises of future taxes.

There are a number of important implications for fiscal policy in this rational economy. First of all, the distinction between government expenditures on capital goods and government expenditures on current goods, often a key distinction in debates about policy, would be irrelevant in determining whether any given deficit were appropriate. If the government invested in social capital, such as roads, it would not matter whether private sector agents were called upon to pay taxes currently, and borrowed subsequently to smooth their lifetime consumption stream, or whether the government borrowed directly. The second implication concerns built-in stabilization. Because the cyclical component of the government deficit consists largely of induced changes in taxes and transfers, balancing the budget annually by means of tax changes would not be destabilizing. However, fiscal policy could still matter in this economy because changes in government spending on goods and services, particularly if they are known to be temporary changes, will alter aggregate demand. The requirement that fiscal policy take the form of expenditure changes would pose problems for stabilization policy, since for good reasons fiscal policy is generally implemented through tax changes.

Most economists do not believe this 'Ricardian' economy to be an accurate description of the world. For reasons mentioned by Professor Modigliani in this volume and for other reasons, tax policies and deficits do influence the economy. Regardless of whether the private decision-makers have foresight, they may be unable to carry out their expenditure plans if capital markets are imperfect. That is, firms and households may find expenditure plans constrained by cash-flow considerations. In such a situation a government deficit may be seen as financial intermediation where the government borrows, at better terms, on behalf of the private sector. Balancing the budget annually would mean that the government would no longer act as a financial intermediary and provide a flow of funds to individuals who would otherwise be unable to fulfil their expenditure plans. As a result, private sector expenditure would rise in booms and fall in slumps, and thus exacerbate the cyclical swings in income.[1]

While it is true that the world is unlikely to be populated by rational maximizing decision-makers operating in perfect capital markets, it is also unlikely that it is populated by myopic decision-makers whose behaviour can be described by simple Keynesian consumption functions. The actual impact of fiscal policy depends on whose incomes are being affected and on how the policy alters the liquidity constraints that are binding in the economy. It also depends on the effect of the policy on the expectations of individuals regarding their lifetime disposable wealth or permanent income. For this reason, the mechanical link between tax policy and private expenditures that is presumed in the econometric models is unlikely to prevail in the real world. That is to say, the link between tax policy and private expenditures is likely to be more problematic than the historical correlations indicate, since these correlations are average correlations and do not necessarily predict how the private sector will respond under different circumstances. Furthermore, in the enactment of any current discretionary fiscal policy, a key consideration should be its effects on future behaviour.

The need for fiscal prudence

We use the term fiscal prudence to mean that, in some sense and in some time frame, the government must balance its budget. Of course, growth of real output allows for a non-zero 'steady-state' deficit. Private debt grows with real output, so why not the public debt as well? The budget need never be balanced literally; rather, the government can run a deficit that is consistent with letting its real debt grow at the trend rate of growth in real GNP. Henceforth, when we refer to 'balancing the budget' we mean this to include this growth term, a term that could amount to up to $3 billion annually in Canada at the present time.

In the Ricardian economy discussed above, where people discount expected future income to estimate their lifetime wealth, it was assumed that the fiscal authorities do follow a policy of fiscal prudence. That is, the present value of future taxes is equal to the present value of future government expenditures by assumption. In practice, however, there is a need to ensure that such a fiscal balance is struck. Why? Unlike private borrowers, who must convince lenders of the responsibility of their intended borrowing with financial ratios, an investment prospectus, and the like, the federal government (at least in a sound economy) need never convince its creditors that, over some appropriate time period, its budget is in balance. The creditors of the public sector will not bear the cost of profligate public borrowing, except as citizens like everybody else, so as lenders they will not care whether government borrowing is responsible. They will lend to the government because of its power to tax and, if need be, to create money or to borrow still further in order to pay them interest.

It is for this very reason that deficits are useful as a counter-cyclical device: they support private expenditure that would otherwise fall in recessions, when lending to private agents falls due to greater uncertainty and reduced cash flows. For the same reason, however, creditors would constrain government borrowing only when the economy was on the verge of ruin - and that, of course, would be too late. Therefore, there is a need for non-market - that is political - constraints on public borrowing. The question is: what form should these constraints take?

Before addressing that question, we should like to draw one implication regarding provincial versus federal deficits. It is well known that the discretionary policy of provinces is often pro-cyclical. We do not take this to mean that provinces are miserly anti-Keynesians and unaware of the merits of counter-cyclical policy. Rather, the provinces find themselves very much in the same state as private borrowers; that is, their borrowing is constrained by the market. The reason is that provinces, unlike the federal government, cannot resort to the printing press to pay interest on their debt. Nor can provinces easily raise taxes in order to service a large debt. If they did, they would drive out industry and population to provinces with lower tax rates. Thus, in prescribing a rule for federal fiscal policy, one must take provincial deficit policies as more or less given, just as one takes private borrowing as given.

Discretion and fiscal prudence

Advocates of discretionary fiscal policies commonly couch their arguments in terms of 'balancing the budget over the cycle,' with deficits in recessions offset by surpluses in expansions. These deficits and surpluses would reflect both the working of the automatic stabilizers and the use of discretionary policies. We doubt that fiscal prudence and fiscal discretion can be combined in this way.

First, the cycle is not a sine wave with predictable amplitude and period, but a complex and uncertain series of fluctuations involving cycles within cycles. Agreeing upon what constitutes a cycle for the purposes of balancing the budget is almost impossible, especially *ex post*. The fiscal authorities could almost always find good reasons for not balancing the budget at any particular time.

Second, it is difficult enough for policymakers to carry out discretionary fiscal policy even without the constraint that the budget must be balanced over some cyclical period. The constraint would pose a horrendous dynamic optimization problem for the policymaker. In deciding upon any action today, the policymaker would have to worry about the implications for future deficits and, possibly, the implications of not covering past deficits.

Third, there is an ever-present temptation to forgo discretionary surpluses during good times and to let bygones (past deficits) be bygones. This not only reflects political reality; at a more academic level, it also reflects the time-inconsistency of optimizing policies (see Kydland and Prescott 1977).

In addition, there are other, more pragmatic arguments against the use of discretionary fiscal policy. For one thing, discretionary policy results in recognition and decision lags that could be destabilizing. Moreover, discretionary tax changes invite divisive distributional wrangling.

For these reasons, we believe that it would be difficult, if not impossible, to combine discretionary fiscal policy and fiscal prudence. The notion of discretion with budget balance over the cycle provides a useful conceptual framework in which to discuss the issues, but is not of very much help in designing an operational fiscal policy.

Political aspects of fiscal rules

Fiscal rules are commonly advocated and interpreted in terms of 'constraining the political system'. A conventional view is that discretionary policy will be biased towards expansion, with the cumulative effects of increasing the size of the government sector and, through induced pressures on the central bank to monetize the debt, accelerating inflation. Indeed, some advocates of rules concede that discretionary policy could improve macroeconomic performance in the short run but argue that the long-run costs dictate against its use.

We argue that in fact there is reason to believe that fiscal discretion has harmful effects, and that adopting and following fiscal rules can lead to an improvement in macroeconomic performance. For example, consider the pressures that arise from time to time for the government to balance the budget. Typically, these pressures are strongest when budget imbalances are largest. Those imbalances often reflect the workings of the automatic stabilizers, and any discretionary policies introduced to reduce the budgetary imbalance will *destabilize* national income. Policies of precisely this sort were adopted in the 1930s, exacerbating and prolonging the Great Depression. Many people advocated the same policies in the fall of 1982 and the winter of 1983, when the federal deficit reached massive proportions for cyclical reasons; indeed, policies of this type were adopted at that time by several of the provinces. (Recall our earlier discussion o why it is understandable that the provinces should behave this way.)

The existence of a credible fiscal policy rule would not preclude entirely this possibility of perverse discretionary fiscal policy - rules can be amended or broken - but it might reduce the chance. Most of the pressure to reduce the deficit reflects fear that things are 'out of control' and that the government cannot be trusted to allow a surplus to develop once the recovery occurs. Commitment to a fiscal rule that would maintain fiscal prudence over some clearly specified time period could quell at least some of those fears and reduce the pressure to pursue destabilizing discretionary policy. Thus, rules may help avoid undesirable fiscal contraction as well as undesirable fiscal expansion.

THE DESIGN OF FISCAL RULES

Fiscal rules may be either rigid or contingent. Rigid rules are easier to understand and enforce, but they are harder to defend against the seductive appeal of discretionary policy. In this section we outline an approach to formulating rules and then critically evaluate some currently fashionable fiscal rules.

A framework for formulating fiscal rules

The basic notion of a fiscal rule is to have in place an established tax and expenditure structure that 'balances the budget' over the medium term (three to ten years) yet generates counter-cyclical fiscal behaviour in the short run. This structure may be augmented with certain policy options, contingent on circumstances, that add further stimulus or contraction as needed but are 'automatically' removed as the economy returns to a 'normal' condition; e.g., programs with cyclical 'sunset' clauses.

Clearly the problem is to design a rule that maintains fiscal prudence over the medium term but is counter-cyclical in response to short-run fluctuations. One framework for formulating such rules is that of Phillips (1954), who first identified the concepts of proportional, integral, and derivative automatic stabilizers.

A proportional stabilizer results in a fiscal stimulus (contraction) that is proportional to the output gap - defined here as the difference between actual output and the output that is achieved on average. Such a stabilizer exists in the present fiscal structure because aggregate taxes and transfers are positively related to the level of aggregate output. (It is this that most people have in mind when they talk of automatic stabilizers.) The main shortcoming of proportional stabilizers is that they can only mitigate, not eliminate, fluctuations in output because an output gap is needed before a proportional stabilizer comes into play.

An integral stabilizer is a positive function (for simplicity, a proportion) of the accumulated output gap over a half-cycle. With this stabilizer, the stimulus (contraction) becomes greater the longer the economy remains away from its normal or average state. The case for an integral stabilizer for fiscal policy rests on the idea the economy will not automatically return to a normal state but gets 'stuck' in the recessionary (or less likely, the expansionary) phase of the cycle. The problem with the integral stabilizer is that its maximum impact occurs at the end of a half-cycle, at which point it may be extraordinarily pro-cyclical. An example of an existing 'automatic' integral stabilizer is the transfer resulting from the real debt service. During a recession (expansion) government debt rises (falls) as long as the output gap persists, assuming that the budget is in balance when output is at its normal level. Thus, the real transfer resulting from the debt service is largest (smallest) at the end of the recession (expansion).

A 'derivative' stabilizer would be positively related to the difference between the trend growth rate and the actual growth rate. This stimulus would come into play if the economy grew more slowly than trend, regardless of whether the output gap were positive or negative; in essence, it is a negative 'accelerator' effect. Phillips argued that there is a strong need for such derivative stabilizers.

The present system relies heavily on automatic proportional stabilizers augmented by discretionary policy changes (although, as noted, the debt service transfers act as an integral stabilizer because of the dynamics of debt accumulation over the cycle). If one wishes to adopt rules in order to limit discretionary power for the purpose of fiscal prudence, it may be desirable that the fiscal rules augment the existing 'automatic' proportional stabilizers with stabilizers of the derivative and integral types.

Rules that directly constrain the deficit

A simple - some would say simplistic - rule is the annually balanced budget. It is very easy to criticize this rule, even to ridicule it. Why should the budget be balanced over a year rather than over a longer or shorter period?

In response to the question 'Why balance over a year?', a balanced-budget advocate would answer 'Why not?' There is nothing really sacred about a year except that it is a fixed and well-defined period of time. Balancing the budget over a year would ensure fiscal prudence. However, the fact that the year is a shorter period than the average business cycle implies that balancing the budget over a year will be destabilizing, for reasons discussed above.

As mentioned, the problem in designing rules is that of trying to reconcile fiscal prudence in the form of a balanced budget over some time-frame with the requirement that fiscal policy be at least not pro-cyclical and preferably counter-cyclical. The answer to this problem seems to lie in requiring 'balanced' budgets when the economy is operating 'normally' but allowing annual deficits or surpluses when it is not.[2] This approach differs from discretionary policy in that the rule both prescribes and proscribes the range of actions that can be undertaken by the authorities.

Perhaps the simplest rule that is not blatantly pro-cyclical is the requirement that the budget be balanced (excluding the growth factor) if output is on the trend growth path. Implementing this rule requires the calculation of the deficit adjusted for deviations of actual output from its trend value, which, in one form or another, is a common practice. A major difficulty with a rule that balances the budget subject to a cyclical adjustment lies in reaching an agreement on the appropriate cyclical adjustment to make. Specifically, unreasonable estimates of what the economy is capable of accomplishing over the medium term will leave the budget in deficit for an extended period of time. For example, the cyclical adjustment made by the Department of Finance (1983) has been in deficit for seven out of the last eight years and is not expected to be in surplus in the foreseeable future. This cyclical adjustment is based on a 'normal' unemployment rate of approximately 6.5 per cent. Few, if any, economists anticipate a period with unemployment rates below 6.5 per cent long enough to offset the 'cyclical' deficits of the past eight years and those anticipated over the next few years. In other words, any rule that balances the budget at 6.5 per cent does not balance the budget in accordance with any reasonable expectation of the economy's performance over the medium term. For this reason, we believe the cyclical adjustment should be based on conservative and realistic forecasts of the medium-term output performance rather than on potential output estimates based on labour market and capacity utilization studies.

Adjusting the budget balance for deviations in output over the cycle is commonplace, but the balance is also affected by other economic variables that may vary over time, including the stock of government debt, the real interest rate, and the inflation rate. We consider each in turn.

The proportional stabilizer of the tax-transfer system implies changes in the stock of government debt, and hence the transfers to the private sector resulting from the debt service. These 'debt dynamics' are often ignored in discussing the merits of automatic stabilization. As mentioned, they act as an integral 'stabilizer', with the level of stimulus depending on the accumulated output gap. As such they may be destabilizing. In the appendix, we have added these debt dynamics to a simple cyclical model that assumes real interest rates remain constant. We find that, at least in the case considered, the debt dynamics slightly reduce but do not reverse the automatic stabilization provided by the tax-transfer system. In any case, the fiscal rule could require that taxes be adjusted to cover changes in the real debt service transfers due to cyclical fluctuations in the size of the government debt. Whether this is desirable depends on whether there is a need for integral stabilizers in the event that the economy becomes 'stuck' above or below normal output levels.[3]

Fluctuations in the real interest rate also influence the budget balance. If such fluctuations are not offset by tax changes, they may be either stabilizing or destabilizing depending on whether real interest rates vary inversely or directly with output. Fiscal rules could be designed to accommodate budget-balance changes resulting from the former and to tax finance (and thereby sterilize) the latter.

Recently, a strong case has been made for adjusting the government budget balance for the effects of inflation. The argument is fairly straightforward. Inflation reduces the real value of the outstanding government debt. Therefore an adjustment equal to the inflation rate times the net stock of government fixed dollar liabilities should be added to the budget surplus and subtracted from private saving. Adjustments of this type have been carried out by other authors in this volume, ourselves (1983), and the Department of Finance (1983).

There seems to us to be a distinct danger in adjusting the government budget balance using ex post inflation rates. This type of inflation adjustment implies that it is desirable to create government liabilities that can be absorbed only if the existing inflation rate continues. If this inflation rate differs from the target inflation rate, this approach would be inappropriate. Other adjustments aside, it seems clear that a necessary condition for lowering the inflation rate to the target level is to ensure that nominal government liabilities grow no faster than the target inflation rate. In particular, it is quite unrealistic to think that governments can increase their nominal liabilities at a rapid rate over time while the monetary authorities restrict the growth in the money supply by some form of the so-called k per cent rule advocated by Friedman. This is, of course, the thrust of the argument made by Sargent and Wallace (1981).

Our views on the inflation adjustment of the budget balance can be summarized as follows. The now conventional practice of adjusting the balance using ex post inflation rates is fine for descriptive purposes. For prescriptive purposes (i.e., the design of a fiscal rule), it is appropriate to adjust only for the target inflation rate in determining the permissible deficit.[4] Of course, under a gradualist approach to disinflation, the medium-term target inflation rate may exceed the long-run steady-state inflation rate just as the medium-term unemployment rate may exceed the long-term 'natural' rate.

Targeting on the national debt

Recently, some observers have turned their attention to the behaviour of the national debt, usually scaled by GNP, in their search for something to pin a fiscal policy on. The main difficulty with the deficit, even when appropriately adjusted, is that it provides a static answer to a static question - Is there a structural deficit? - and ignores the accumulation of debt that occurs over time. The absence of a structural deficit in a recession implies that if the economy were to achieve capacity output at that time, there would be no deficit. But since recovery takes time - perhaps quite a long time - the cyclical deficits accumulate and the debt to GNP ratio rises. Numerous commentators have pointed out that the federal net-debt to GNE ratio has been rising steadily from a post-First-World-War low of approximately .05 in 1974. The Department of Finance (1983) projects this ratio to level off at .34 by 1986.

There are a number of caveats to keep in mind when focusing on the debt to GNP ratio. First, although the ratio automatically adjusts for output growth, it does so using actual rather than trend rates. Thus, the cyclical movement in the ratio is exaggerated, since the numerator (debt) and the denominator (GNP) move in opposite directions over the cycle. Second, the cyclical phase of the debt-GNP ratio does not correspond to the phase of the business cycle. The numerator (debt) reaches a peak or trough at the mid-point of the output cycle. This circumstance may give rise to misplaced concern about the high debt to GNP ratios expected towards the end of the current recovery. In fact, this is the time when the debt to GNP ratio is largest; it does not imply that the cyclical average debt to GNP ratio is rising over time.

The third caveat concerns the implicit inflation adjustment one makes when targeting on debt to GNP ratios. Since nominal debt is divided by nominal GNP, the implicit adjustment makes use of the *ex post* GNP deflator. We have already pointed out the dangers of making such an inflation adjustment to measured deficits.

In conclusion, the danger of a pro-cyclical rule that validates existing inflation rates is as large, if not larger, when the focus is on debt to GNP ratios as it is when the focus is on balanced budgets. Nevertheless, the debt dynamics arising from the accumulated deficits over the cycle may be destabilizing, and, to the extent that an appropriate rule can be designed, targeting on the debt-GNP ratio could play a useful role in ensuring fiscal prudence.

FISCAL RULES AND MONETARY DISINFLATION: LESSONS FOR CURRENT POLICY

Consider the typical policy problem perceived by most Western economies in the last decade: to reduce the underlying inflation rate. There is widespread agreement among economists that a reduction in the rate of expansion of the money supply is necessary to ultimately achieve this goal. However, controversy remains about what strategies best ease the transition from high to low inflation. Central to this debate is the question whether monetary growth should be reduced gradually or sharply. We believe that the emphasis on this question has crowded out the equally important question of the role for fiscal policy in the disinflation process.

A necessary condition for a lower inflation rate is that all nomina liquid government liabilities grow no faster than the real growth rate plu the target inflation rate. It is unrealistic to think that the government can continue to inject its overall liabilities into the economy at (say) 15 per cent per annum over the foreseeable future and yet require that monetary authorities increase the money supply by (say) only 5 per cent per year.

The considerations raised earlier in this paper suggest that these issues are of concern not only in terms of the long-run consistency of a program of reducing the rate of monetary expansion not accompanied by fiscal contraction, but also in terms of the design of a short-term policy to facilitate the transition.

Consider a typical disinflation policy initiated by monetary restraint. This policy drives up interest rates, curbing expenditure and generating a recession. As the recession feeds into prices, it is argued, inflationary expectations will adjust and full employment will eventually be reattained at a lower inflation rate. During the adjustment, the measured government budget balance moves into deficit due to the recession. Further, the temporary rise in real interest rates leads to a worsening of the inflation-adjusted deficit.

These deficits have recently been the source of considerable controversy in many countries that have embarked on policies of monetary disinflation, including Canada. Our own initial reaction was to accept the traditional adjustments that 'explained the deficit away' and, hence, to reject the concerns about the deficit being expressed, primarily but not exclusively, by analysts in the capital markets. While we still feel that many of these concerns were overstated, further consideration has led us to be less sanguine about the deficit. The cyclical adjustment is, as we have argued above, too static a concept. The inflation adjustment is difficult to do and even harder to explain, and it is often used in a way that confuses the roles of the actual and expected inflation rates.

The cumulative effect of the large projected deficits, even corrected for target inflation, would be a dramatic increase in the debt to GNP ratio over the medium term. The effect of this increase on interest rates remains an unsettled question, but there is no argument to suggest that the rising debt to GNP ratio lowered interest rates. Its effects may have been small, but it likely contributed something to the troubling persistence of high real interest rates that seemed to inhibit recovery. Both through this and other channels, the rising debt to GNP ratio seemed to unsettle expectations about the credibility of the policies being pursued, and to raise the possibility of a return to a high-inflation world.

For these reasons, we feel that fiscal contraction is an integral part of a policy mix designed to reduce the rate of inflation in the economy. Not only is it required in the long run to limit the rate at which government liabilities are being injected into the system, it is also beneficial to the short-run goals of moderating expectations and easing the transition period. (The view that a tighter fiscal policy, accompanied by a less stringent monetary policy, would have eased the transition and aided a non-inflationary recovery has also been put forward by many American economists, including James Tobin.)

In late 1982 we started looking at the deficit from the point of view of determining whether it was consistent with fiscal prudence and discipline. Our first approach was to ask whether there existed a 'structural deficit' - i.e., one that existed after adjusting for inflation and the cycle.[5] However, the considerations discussed above soon led us to elaborate on that approach. Our view was that because of the projected large deficits into the medium term, the deficit did in fact impose a constraint on discretionary fiscal expansion.

In our 1983 paper, we calculated a budget deficit using target inflation rates on the order of 4 per cent, an unemployment rate (consistent with disinflation) of 9 per cent, normal real interest rates on the order of 4 per cent, and trend growth on the order of 3 per cent. We found that a 1983 calendar-year deficit, consolidated for all levels of government, in the mid-twenty billions seemed perfectly consistent with a rule that 'balances' over the anticipated future. For this reason, we advocated mild and temporary expansion on the order of $3 billion.

Given the GNP gap of approximately $40 billion, this would be a very small stimulus. The prospect of a strong private-sector recovery in the U.S. and Canada, with the concomitant fear that fiscal stimulus operating with a lag would be pro-cyclical rather than counter-cyclical, strongly mitigated but did not eliminate the need for stimulus. The $3 billion figure represented our attempt to quantify the constraint that we perceived arose from the deficit.[6]

We also argued that a key part of the budget strategy should be that any stimulus that is provided should not be at the expense of an increased structural deficit. Hence, stimulus measures should be self-eliminating.

The budget brought down by Finance Minister Lalonde in fact met these basic specifications. Only $1.9 billion in stimulus was provided in the first year, and the deficit was 'tilted' so that it shrank with time. For a detailed discussion of this, see Bruce (1983).

A central question respecting the performance of fiscal policy in the future is whether or not the government honours the commitment made in this budget to reduce the deficit as recovery proceeds. An essential ingredient of this budget was not direct stimulus but rather the winning-back of the confidence of the private sector. Thus, the rules must be 'obeyed', and there is little room for discretionary expansion over the next few years. If the rule is broken, credibility of future policies will be seriously in question.

APPENDIX

In this appendix, we examine the effects of debt service transfers on the degree of automatic stabilization provided by the tax-transfer system. Let y_t denote the deviation of output from trend at time t, b_t denote the stock of government debt, and $\cdot$ denote the time derivative; so $\dot{b}_t$ denotes the deficit at time t. Assume

$$y_t = \sin t + \gamma \dot{b}_t, \qquad (1)$$

where $\gamma \geq 0$ is the effect of the deficit on output. In the absence of the deficit, output would fluctuate regularly around a normal output level according to the sine function.

Let

$$\dot{b}_t = \alpha_t - \beta y_t + r b_t, \qquad (2)$$

where $-\beta$ denotes the impact of output fluctuations on the deficit through changes in taxes and transfers, $-\alpha_t$ is an exogenous tax component, and r is the real interest rate (assumed constant) on the government debt.

We can consider three simple rules. (i) Setting $\alpha_t = \beta y_t - r b_t$ balances the budget at each point in time. (ii) Setting $\alpha_t = -r b_t$ balances the budget over the output cycle and allows deficits due to variations in output from trend, but tax-finances all fluctuations in debt service requirements. (iii) Finally, setting $\alpha_t = r\bar{b}$, where $\bar{b}$ is the average stock of government debt over the cycle, balances the budget on average and allows deficits contingent on fluctuations in output and in debt service requirements.

Substituting (2) into (1), we can solve for

$$y_t = \lambda[\sin t + \gamma(\alpha_t + rb_t)], \text{ where} \tag{1'}$$

$\lambda = (1 + \gamma\beta)^{-1} \leq 1$. With a balanced budget, case (i), $\alpha_t + rb_t = \beta y_t$, so $y_t = \sin t$; that is, no automatic stabilization is provided. With a simple automatic stabilizer, case (ii), where $\alpha_t + rb_t = 0$, we have $y_t = \lambda \sin t$. Since $\lambda \leq 1$, the cyclical fluctuations in y are reduced. Given a conservative 'multiplier' γ of 1.5 and $\beta = 0.30$, we have $\lambda = 0.69$; so fluctuations are reduced on the order of 31 per cent.

Now let us consider the more complicated final case, where the fiscal rule also accommodates temporary fluctuations in the debt service payments due to fluctuations in the government debt over the cycle. First, substituting (1') into (2) and setting $\alpha_t = -r\bar{b}$ yields the differential equation in government debt:

$$\dot{b}_t = \lambda[-\beta \sin t + r(b_t - \bar{b})], \tag{2'}$$

which can be solved for:[7]

$$b_t = \bar{b} + \beta\lambda/\delta[\lambda r \sin t + \cos t], \tag{3}$$

where $\delta = [1 + (\lambda r)^2]$. Substituting (3) into (2') gives

$$y_t = (\lambda/\delta)[(1 + \lambda r^2) \sin t + (1 - \lambda)\, r \cos t].$$

We can now calculate the accumulated absolute output deviations from trend over the cycle - i.e.,

$$A = \left(\int_{t_o}^{t^o+2\pi} (y_t)^2\, dt\right)^{\frac{1}{2}},$$

where A_1, A_2, and A_3 denote the three cases described above:

$A_1 = \pi^{\frac{1}{2}}$,
$A_2 = \lambda\pi^{\frac{1}{2}}$, and
$A_3 = \theta\lambda\pi^{\frac{1}{2}}$,

where $\theta = [((1 + \lambda r^2)^2 + (1 - \lambda)^2 r^2)/\delta^2]$.

It can be shown algebraically that θ must exceed unity if λ is less than 1; consequently, A_3 exceeds A_2. It can also be shown that $\lambda\theta$ must be less than unity if λ is less than unity. Thus we have

$$A_2 \leq A_3 \leq A_1.$$

Both of the balance-over-the-cycle rules reduce output fluctuations relative to the strict-balance budget rules, but it is destabilizing to allow the deficit to absorb fluctuations in debt service expenditures resulting from cyclical fluctuations in the government debt. However, using $r = 0.05$, $\beta = 0.3$, and $\gamma = 1.5$, we can evaluate A_2 as 0.6897 and A_3 as 0.6906. Consequently, the effects of the debt dynamics are small, at least in the model considered.

NOTES

1 A second reason why the annually balanced budget may be destabilizing is because the tax increases enacted in order to balance the budget during recessions might be assumed to be permanent. In that case, households would believe their lifetime disposable wealth to be reduced and would reduce their consumption accordingly.

2 The true balanced-budget advocate would reject this approach. Milton Friedman is fond of drawing analogies between policymakers and alcoholics; in this context, the analogy would be the total-abstinence requirement that alcoholics refrain from drinking altogether. Similarly, in this view policymakers must eschew annual deficits.

3 The model in the appendix assumes that output fluctuates regularly around the trend. Thus, integral stabilizers do not play any positive role and, as mentioned, reduce automatic stabilization slightly.

4 Alternatively, if the budget balance is adjusted for the actual inflation rate, then some non-zero value must be targeted for if the actual and target inflation rates differ.

5 For reasons noted earlier, we focus on the consolidated deficit.

6 However, events have overtaken this policy prescription somewhat. Soon after we wrote the paper, the estimated federal deficit for 1983 increased from \$23 billion to nearly \$30 billion. This increase did not come, at least totally, from a worsening of the cycle but from structural changes, a major cause of which was the collapse of government revenues from oil. Also, the sharp fall in inflation raised real interest rates on the public debt (a situation that is temporary and not serious). More important, the fall in inflation nullified the real tax increase expected on the basis of the 6 and 5 per cent index-

ation cap of the tax brackets in 1983 and 1984.

7 This solution 'starts' the economy at a particular point in the cycle (specifically, t_0 = arc tan $(-(r\lambda)^{-1})$) such that b_t has no trend.

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William Mackness*

I am the last speaker but one in today's very long and very interesting program. In these circumstances, I shall do my best to be brief. Moreover, my not having had prior access to the Bruce-Purvis paper also recommends some economy in my remarks. However, lack of access to the paper also allows me some latitude in the scope of my remarks.

Let me open with some general remarks. There seem to be a number of underlying propositions about public finance that have been accepted quite uncritically today. For example, there appears to have been a presumption throughout these proceedings that, as a practical matter, a higher level of deficit increases aggregate demand and a smaller level of deficit reduces aggregate demand. That is a handy framework, something of an analytical crutch. However, an analytical crutch is useful only if it is a relatively accurate reflection of the real world. Notwithstanding the benefit of economy of thought and analysis, it is simply not helpful to create the impression that output and employment necessarily benefit from expanding public spending and the deficit - and vice versa.

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Cast your imagination on this argument. It is an empirical fact that if the worst-managed economies in the world can accomplish anything, they can do the following two things: they can devalue and they can run deficits - on scales that are often boundless. One would always be cautious of the simple argument that there is some easy way out of economic difficulties - for example, all we have to do is devalue and we shall export our unemployment to our trading partners. In Canada, we have already tried devaluation, the first of the easy policy options. The tone of much of today's discussion indicates a belief that the second of the slick and easy policy options - deficit finance - may just work where devaluation certainly has not.

It is so convenient and enticing to think that if you had the proper management team in place, you might just be able to get the deficit a little higher and somehow walk away from your difficulties. This is an unsound and dangerous argument. I think, in fact, that most of the deficit arguments rest on an extremely limited case. There can be serious and persistent imbalances of saving and investment, as there clearly were in the 1930s. In such exceptional circumstances, where trust, confidence and the financial system have been devastated, there is both virtue and benefit in major recourse to public spending and deficit finance. However, to use the same techniques to finance buns-and-butter policies, policy-induced capital outflows, and the like is a plainly deficient policy on both a priori and empirical grounds.

More to the point of today's discussion, I don't think that in a small, open economy it is a very bright idea at all to have a highly levered fiscal system that produces fearsome and unpredictable deficits. Anyone familiar with the official forecasting record of the most recent deficit knows for certain that the deficit is not a finely calibrated policy instrument. Even a kind assessment would record that the policymakers had virtually no ability to control or even to predict the future course of the policy instrument they were wielding or, more accurately, were attempting to wield.

In fact, if the real problem with the economy is a lack of foreign demand, it is not clear that abusing the fiscal system is going to move the economy a long way ahead - or move a lot of nickel out of Sudbury - or move a lot of lumber out of Port Alberni. Similarly, if one of the key reasons that the recession is so severe is that the private sector of the economy is vastly under-capitalized and caught up in a liquidity crisis - a liquidity crisis that is forcing layoffs and asset sales at a rate never seen since the 1930s - it is not clear that running up the fiscal deficit in Ottawa or the provinces is going to be particularly helpful. In Canada, the public sector deficit as a proportion of GNP is the highest among the industrial economies, with the single exception of Italy.

Let me pose a question. Does Canada's deficit reflect in the main bad luck, deficient economic management, or a determined and sophisticated economic policy? I think the real fiscal and economic problems are far too complex to run on a simple-minded, single-variable policy rule. I liked the degree of skepticism that I heard in Neil Bruce's paper. Canada's record of fiscal management simply does not inspire much confidence.

Let me make a quick aside on the issue of inter-generational shifts of resources. It is preposterous to argue that public assets should necessarily or desirably pass between generations accompanied by large indebtedness. The inter-generational shift argument would have it that public assets should be accompanied by millions or billions of dollars of perpetual debt so that others can worry about paying for public assets, long-lasting or otherwise. Those who point to eventual redemption of indebtedness should be reminded that Second World War Victory Bonds will be rolled over this year, not redeemed. I think the whole inter-generational shift argument is idle and fallacious nonsense. Closer to home, the argument would have it that family assets passed between generations should come with a matching mortgage or other indebtedness. The inter-generational shift argument is both mean-minded and silly.

So much of today's discussion of fiscal policy rules and targeting presupposes a completely unrealistic degree of predictive accuracy. Just for the record, only fifteen months ago, in November 1981, the first estimate of the federal deficit in fiscal 1982-3 was $6.8 billion. Subsequently, this estimate was amended to $17 billion, then to $19 billion, and most recently it is rumoured to be approaching $30 billion. There is an important lesson here. Fiscal forecasting and fine-tuning are not a very precise science. For the record, it is worth remembering that the $6.8 billion estimate was produced when the economy was already five months into the worst recession in fifty years. I have been in the forecasting business too long not to realize that all forecasters live in glass houses. The point of reviewing the record of federal fiscal forecasting is simply to underline the severe limitations of fiscal forecasting and manipulation, particularly in a highly levered, open economy such as the Canadian economy.

We have raised here today the question of crowding-out. Plainly and simply, we don't know if there is going to be crowding-out. We have never had today's scale of financial deficit in peacetime or on such a sustained basis. By our calculation at the Bank of Nova Scotia, the overall government financial requirements are going to amount to something on the order of 8 per cent of GNP this year and again next year. That represents a range of $30 to $35 billion on a conventional national accounts basis. On a cash basis, taking in the off-the-books financing for EDC and other federal and provincial crown corporations and so on, there will be an overall government borrowing requirement on the order of $45 billion dollars this year and again next year. This unprecedented government cash requirement should be measured against a total capital pool that might reasonably be estimated at $60 billion. Government borrowing has never accounted for half of the capital pool for two consecutive years before. Over the next two years, about 75 per cent of the savings pool will be devoted to meeting public sector borrowing requirements. I wouldn't care to wager a great deal of money that anyone can predict with any useful degree of accuracy what the results are going to be. However, I do not think these unprecedented levels of public sector borrowing create a good environment for an economy that has a very serious capitalization problem across virtually every industry in the country.

The Canadian corporate sector is severely under-capitalized and has the highest degree of foreign ownership among the industrial economies. It is not helpful, I think, to point to the aggregate demand for corporate borrowing over the next couple of years as being quite low. To focus on the prospect of low net corporate borrowing demands over the next year or so is to miss the point. The problem in the corporate sector is that there is a vastly too great dependence on short-term floating rate debt, bank loans, and the like. The issue is that if the economy is going to grow again, the corporate sector must restructure the balance sheet. Even if the net borrowing demand in the corporate sector is fairly close to zero, it is not a good idea for the government sector to be into the market for tens of billions of dollars at a time when it is necessary to restructure corporate balance sheets across the entire economy. There is a pressing need for new issues of corporate equity and long-term debt with which to retire today's excessively high levels of short-term debt.

Let me comment here on the basic idea of a fiscal rule. I think the the Bruce-Purvis paper, if I interpret it properly, presents a sound argument on the question of a fiscal rule. Namely, there is no need for a rule that says you should raise taxes in the middle of a recession. I think, moreover, that it is useful to have some approximation of the amount of the deficit that is occurring because of what is happening in the economy, and I would not advocate strenuous efforts to correct that sort of deficit. I would argue, though, that it would be prudent in this country, where the economy is so open and so exposed, to have a relatively unlevered tax system. Moreover, I don't think it is a good idea, given the way energy prices are moving around, that the fiscal system be highly dependent on energy revenues. The general rule is that income-based tax revenues are inherently unstable. Consumption-based tax revenues are quite stable.

A concluding point that is very, very important is that Canada has an extremely open economy with respect to capital markets and international capital flows. To see the government deficit appearing to move out of control is very destructive of confidence and produces extremely destabilizing capital outflows. There is compelling empirical evidence that a rising deficit is probably the single best advance warning that a businessman or a taxpayer can get of an impending tax increase, or worse. International investors are quick to confirm that loss of fiscal control correlates very highly with rising inflation, economic dislocation, rising government intervention, and sub-standard economic performance. International investors also have a record of acting on this perception.

Let me make a closing remark about the politics of deficit finance. I think that a regular, heavy reliance on deficit financing is the antithesis of the democratic process. The whole point of representative government, going back better than a thousand years, has been parliamentary control of the pursestrings. The deficit subverts the process by providing for a level of public spending that is far in excess of what would be tolerated by the electorate. At this point I would remind you that federal government spending in Canada is running at a level fully 50 per cent above revenues. To me the evidence is compelling that if the books had to balance over the cycle, we would not have nearly as large a public sector as we have.

Rapporteur's remarks

David Laidler*

This conference has dealt with a wide range of issues having to do with deficits. We have had papers about the Canadian federal deficit (Wilson and Dungan, McCallum), about the Ontario provincial deficit (Auld), about the way in which financial markets view those deficits (Grant), about their significance when viewed in the light of the extreme openness of the Canadian economy (Wirick), and about the underlying principles of economic, and indeed social, analysis that must inform any properly structured discussion of the conduct of fiscal policy (Modigliani, Parkin, and Purvis and Bruce). The conference has, I believe, been a success precisely because it has been so wide ranging, and because our theoretical discussions have taken place, not in a vacuum, but in the context of a pressing and important problem of current policy. It is as well, then, to begin this attempt to sum up our proceedings with some comments on the nature of that policy problem.

THE CURRENT RECESSION AND THE DEFICIT

To put it simply, the Canadian economy is, at this moment, in the very trough of the most serious recession it has experienced since the 1930s. Policymakers are under considerable pressure to 'do something' to alleviate this recession. Naturally enough, they turn to the traditional tools of demand management policies, developed by economists over the last four decades, to see what is available to them, and perhaps because of some residual 'Keynesian' instinct in their thinking, they seem to be looking mainly to fiscal policy. Fiscal policy is certainly important enough in its own right to merit single-minded attention, but I believe that at this point

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I should say a word or two - necessarily assertive, given time and space constraints - about monetary policy.

I have no doubt that the major cause of the current recession has been excessively tight monetary policy. It is about two years since the Bank of Canada's own choice of monetary aggregate, M1, to all intents and purposes stopped growing. Other aggregates too showed a marked tendency to grow at slower rates. In the wake of this development, interest rates, both nominal and real, reached unprecedented heights from which only the recession has dislodged them. Of all the possible indicators of the stance of monetary policy, only the $US exchange rate has failed to show the traditional signs of 'tight money' by significantly appreciating; but that, as we all know, is because the United States too has had tight money. On a trade-weighted basis, the Canadian dollar has indeed appreciated. It is seldom that all possible indicators of the stance of monetary policy point in one direction, and economists of all schools should be able to agree on the importance of its role in generating the current recession.

Be that as it may, because one factor causes a recession does not mean that another factor cannot alleviate it, and since the monetary authorities seem to believe - probably rightly, in my view - that any significant slackening of monetary policy carries with it a great risk of rekindling inflation, we are bound to consider carefully what can be accomplished by fiscal means. At first sight, this alternative seems to offer little promise. Fiscal deficits, both federal and provincial, appear to be running at unprecedented levels. There does not seem to be room, within the financial constraints facing governments, in which to implement the spending or tax-cut programs traditionally brought into play in times of low output and high unemployment. It is a strongly held belief in certain quarters of the financial community, as Grant in particular has told us (without committing himself personally to that view), that past fiscal excesses have left governments powerless to deal with the current situation by any policies that will further increase their deficits (or even, according to some, leave deficits at their current levels).

The underlying worry of the financial community is that ultimately capital markets will prove unwilling to lend to governments, so that the one government with access to the printing press, namely the federal government, will be forced to resort to it. It is fear of renewed inflation in the longer term - a fear well grounded in economic theory, as Michael Parkin's paper has shown us - that provides the foundation for current concerns about the deficit, and particularly the federal deficit. As Auld has pointed out, the provinces cannot resort to the printing press and hence must eventually give in to pressures from capital markets to put their finances in order. For this reason, provincial deficits do not attract much attention.

Much of the quantitative work presented to this conference has been directly addressed to the concerns I have just mentioned. In particular, it has been almost universally argued that current deficits are not the result of irresponsible fiscal policies implemented in the past, and that the bald figures in which they are typically measured (about $30 billion for the 1983-4 federal deficit, given current policies) grossly exaggerate the strains they place on financial markets. It has also been argued, although with much less unanimity, that there is, even now, considerable room for fiscal stimulus in the Canadian economy. McCallum in particular has argued this position, and Wilson and Dungan have taken up a more restrained version of it.

As I discuss these matters, my own views will necessarily intrude, so let them be clear at the outset. I share the view that the current situation respecting the deficit was not produced by irresponsible policies, but I am nevertheless doubtful that any room remains for further fiscal expansion. My reasons for taking this view will become apparent in due course.

THE NOTION OF THE 'STRUCTURAL DEFICIT'

Franco Modigliani surely set out a basic truth when he suggested that high deficits are in large measure the result, rather than the cause, of that ugly phenomenon (with an equally ugly name) 'stagflation'. To see why, it is helpful to begin with what Wilson and Dungan have called the 'structural deficit'. This is the deficit that the government of any country with a given set of policies in place would incur, if its economy were running at a sustainable level of 'full-employment' output at a zero inflation rate. Now ask what would happen to the actual deficit of such a country if, with fiscal policies unchanged, it began to experience positive inflation and/or a level of output below 'capacity'. The answer in either case must be that the actual deficit would grow.

With inflation, the nominal interest rate paid on public debt would rise and government cash outlays would grow. However, the related inflation-induced fall in the real value of government debt outstanding, which represents debt retirement, would not enter into the government's accounts. If all government debt bore interest at a nominal rate fully indexed to the current inflation rate, these two effects would cancel each other out completely as far as the real state of government finances was concerned. However, given accounting procedures that do not adjust indebtedness for inflation, the government's measured deficit would increase. When debt is not fully and automatically indexed, the matter is more complicated; I will return to this point in a moment.

The notion of adjusting the deficit for inflation is a fairly novel one, at least as far as Canadian policy discussions are concerned, but it ought to be relatively uncontroversial. On the other hand, the effects of recession on deficits are well understood. As the economy slows down, tax receipts fall and benefit payments of one sort or another increase. That is how built-in fiscal stabilizers are supposed to work, and inherent in their operation is a deficit that increases relative to its structural level in a depressed economy.

An economy suffering from inflation and recession simultaneously will find its deficit influenced by both of the factors I have just discussed, and the Canadian economy is clearly such an economy. Moreover, in the Canadian context the effects we are talking about are large. In round numbers, the inflation adjustment reduces the current deficit by about $8 billion in 1982; and, if one treats the kind of unemployment rates that prevailed in the mid-1970s as being attainable and sustainable in the 1980s, the so-called 'cyclical' adjustment to the deficit essentially eliminates any remaining fiscal imbalance. Indeed, on some calculations it even puts the budget into structural surplus.

All of this is little more than arithmetic, though it is fairly complex arithmetic, as those who look at the papers of Wilson and Dungan, McCallum, and Auld will soon discover. Even so, the arithmetic is uncontroversial *qua* arithmetic. Its economic interpretation is altogether another matter, because the significance of the difference between the 'structural' deficit and its actual value varies with the question being addressed.

PITFALLS IN INTERPRETING THE STRUCTURAL DEFICIT

The first question we may want to ask is whether current deficits reflect the inevitable outcome of persistent fiscal irresponsibility on the part of governments. To answer this question, I would argue, it makes good sense to ask what the deficit would be if the unemployment rates of the mid-1970s were feasible now, and also to ask what the deficit would be if there were no inflation. That is to say, the full adjustments made by McCallum, Wilson, and Dungan for the federal deficit, and by Auld for the provincial deficit, are relevant. When they are made, the answer is unequivocal: the deficits we now face are not the result of fiscal irresponsibility. They are indeed the consequence of stagflation.

At the provincial level, we may take this answer at its full face value. Stagflation was not caused by the policies of the Government of Ontario or the government of any other province. In relation to the provinces, stagflation has been an exogenous phenomenon that may truly be said to have played havoc with provincial finances. Auld exonerates the Government of Ontario of fiscal irresponsibility, and he is right to do so.

At the federal level, the matter is more complex. Fiscal policy, in the sense of expenditure and tax or transfer changes, has not caused the deficit. Stagflation, however, has, and I have already suggested that much of the blame for stagflation is to be laid at the door of monetary policy. Thus, in saying that I agree with Wilson and Dungan, not to mention McCallum, that fiscal policy per se has not caused the federal deficit, I do not mean to imply that the federal government is a victim of circumstances. There has been a long-standing failure to coordinate federal fiscal and monetary policies in Canada, and this failure has had much to do with the current state of the economy, including the state of the federal deficit. The federal government cannot be absolved of its responsibility for this policy failure.

The question of how we got here is one thing; the question of what to do about it is another thing altogether. The adjustments of the measured deficit that we have discussed so far are certainly relevant to the latter question, but for several reasons they must be treated with great care.

To begin with, note that the inflation and cyclical adjustments are conceptually very different from one another. We make the former adjustment because, in an inflationary economy, the measured deficit overstates the rate at which real government debt is being accumulated by the general public, just as on the other side of the national accounts measured private sector saving overstates the very same rate of accumulation. In other words, the inflation adjustment is a simple accounting change designed to distinguish more accurately between current government cash outlays and debt retirement. The cyclical adjustment is a very different matter. The debt generated by the operations of built-in stabilizers is not a statistical illusion. It is real debt with real consequences for financial markets. Moreover, the magnitude of any cyclical adjustment must rest on a whole set of assumptions about how the economy functions now and is likely to function in the future.

Though the inflation adjustment is conceptually straightforward, in practice it presents pitfalls that need careful attention when we discuss the appropriate stance for current fiscal policy. If the interest rate on the national debt were fully indexed to the current inflation rate, there would be no difficulty. Every change in the inflation rate would be reflected in nominal interest payments, and the inflation adjustment could be made by transferring the indexation portion of interest payments from current expenditures to some debt retirement account. The difficulty is that, in contemporary Canada, the national debt consists of instruments bearing interest at rates that reflect inflation expectations at the time of issue, and that will not vary until the instruments in question are retired, regardless of what may happen to the inflation rate in the interim.

I have already remarked that the inflation adjustment to the deficit for 1982 in Canada is about $8 billion. If, as now seems quite likely, the year-on-year inflation rate up to the end of 1983 turns out to be in the region of 6 per cent, the relevant adjustment for 1983 will be somewhere around $5 billion plus. (I am indebted to Douglas Purvis for this very rough estimate.) Interest payments on debt not maturing in 1983 will continue at their old rates, but inflation will not erode the real value of that debt as quickly; consequently, the economy will receive a real stimulus of close to $3 billion this year from falling inflation alone. This does not necessarily mean that further active stimulus should be avoided, but it is something which must be taken into account when considering this question - as indeed it is, implicitly, in the econometric projections of Wilson and Dungan and McCallum.

As I suggested earlier, the cyclical adjustments to the deficit that have been discussed at this conference are altogether more difficult to assess than inflation adjustments, not only because the debt created when the economy is in recession is genuine debt, but also because quantitative estimates of just how far below its feasible long-run operating ceiling the economy now is are controversial. I am bound to say that estimates based on the assumption that unemployment rates of between 7 and 8 per cent are on average feasible over any reasonable medium-term horizon seem optimistic to me. I say this for a number of reasons.

First, it is now five years since we have seen unemployment rates that low, and it is likely to be even longer before we see them again, even according to the forecasts of Wilson and Dungan. An unemployment rate that does not seem attainable for even a short period in more than a decade does not look to me like a feasible long-run average unemployment rate on which to base estimates of the Canadian government's structural deficit.

A second and related reason is this: though the inflation rate is now well down and falling fast, the expectations generated by a decade of serious inflation are not going to erode quickly. Through this cycle and the next, down to the end of the decade, say, the economy is probably going to have to run, on average, with excess capacity, if inflation is to be squeezed out of the system. If 7 to 8 per cent unemployment could be maintained on average in the Canadian economy in the absence of deeply ingrained inflation expectations - and perhaps it could be - this fact would still not be of much relevance in the presence of such expectations.

I would very much like to be wrong about this matter, because I get no pleasure from contemplating so long a period of slack economic activity. However, I get even less pleasure from contemplating the consequences of an expansionary policy that, in seeking to tackle unemployment, underestimates the risks of rekindling inflation and puts Canada in the position of having to undergo an even deeper and longer recession than the current one later in this decade.

My last concern about estimates of what is a feasible long-run unemployment rate stems from a factor drawn to our attention by Michael Parkin. The average unemployment rate that is compatible in the long run with a zero average inflation rate is not a unique number. It depends upon how much the inflation rate varies about an average value of zero. In the short run, it seems to take a greater increase in unemployment to reduce the inflation rate by a given amount than it takes a decrease in unemployment to increase the inflation rate by the same amount. Therefore, the more variable is the inflation rate, the higher is the average unemployment rate compatible with an average inflation rate of zero. If I understand them correctly, the estimates of a sustainable unemployment rate that underlie the cyclical adjustments to the deficit discussed at this conference are based on the assumption of a constant and not a variable inflation rate. Hence they must be regarded as optimistic by anyone who thinks that an average inflation rate of zero, accompanied by some short-term variability, is the best that we can ever hope to achieve.

THE DANGERS OF CROWDING-OUT

The arguments I have sketched suggest that the structural deficit in this country is larger than some of the participants in this conference have suggested, but it does not follow that it is intolerably large. To begin with, it is quite fallacious to think that the 'right' value for the structural deficit in a well-run economy is zero. As Bruce and Purvis have pointed out, in a growing economy the private sector's wealth will grow. If that sector wishes to hold a roughly constant fraction of its wealth in government debt, then, on average, the government must run a deficit - and perhaps quite a sizeable deficit - if that demand is to be satisfied. In an economy growing at 4 per cent per annum, in which the private sector wished to hold public debt to the value of 50 per cent of one year's income, the structural deficit would have to run, on average, at an amount equal to 2 per cent of national income.

Wilson and Dungan have in fact presented us with some information on the way in which the debt-to-income ratio has been moving over time in Canada. This is a particularly useful statistic, because, as both they and Modigliani have told us, the inflation adjustment to the current deficit is automatically built in when it is calculated. What Wilson's and Dungan's data show is that this ratio, which was well over 100 per cent as a result of the Second World War, steadily fell until the early 1970s to a value less than 30 per cent and has since been climbing. It is now back to the levels of the early 1960s. According to Wilson's and Dungan's estimates, it will stabilize at about 50 per cent by 1990 if current policies do not change.

Thus, one question we face is whether a national debt equal to about one half of one year's income will put an undue burden on the Canadian economy. The typical layman's view of such an issue is that the more government debt there is outstanding, the higher will be the interest rates that the private sector must pay. Thus, so the argument goes, government deficits 'crowd out' private sector capital formation and undermine growth.

There are at least two fallacies involved in this position. First, as a number of speakers have reminded us (particularly Auld in his discussion of the Ontario government's deficit), governments themselves participate in the process of capital formation: they do build roads, airports, schools, hospitals, and so forth. Expenditure transferred from the private sector to the public sector is not necessarily expenditure transferred from a productive purpose to a wasteful one. Second, and equally important, the capital market in which Canada can borrow, on both private and public sector accounts, is far wider than the borders of this country.

Wirick's careful and useful study has addressed the latter point. He has shown that on the basis of the historical evidence Canadian borrowing is so small a part of the North American capital market that we are essentially price-takers in that market. This does not mean that we can always borrow as much as we like as cheaply as we like, but it does mean that variations in our borrowing, if they remain within the boundaries of past observations, are unlikely to affect the terms we can get. That is to say, whatever else the deficit might do to Canada, it is unlikely to crowd out private investment.

However, there is an important qualification here. If the ability to borrow abroad means that we can continue to invest, regardless of the deficit, it does not mean that we can continue to enjoy the full benefits of that investment. Interest payments to foreigners represent a real drain on Canada's resources. For a given level of national output, the lower is our foreign debt, the higher are our living standards.

More crucial still, in an open economy, the interest rate/investment channel is not the only one whereby public sector expenditure crowds out the private sector. Indeed, in the Mundell-Fleming model that Wirick cites, government expenditure completely crowds out private sector activity - not through the interest rate, but through the exchange rate - given that this rate is flexible. The capital inflow generated by borrowing abroad appreciates the currency and hits the demand for exports and import substitutes.

This Mundell-Fleming result is not irrelevant. Something very like it was going on in Canada in 1975-6. It is nevertheless true that no one nowadays fears that rising deficits will unduly strengthen the Canadian dollar on foreign exchange markets. Quite the contrary! The great, and widespread, fear is that the size of the current federal deficit is undermining confidence in the stability of the Canadian dollar. If it is, then any attempts on the part of the authorities to combat the recession by applying fiscal stimulus might result in a substantial exchange depreciation, a renewal of inflation, and ultimately an even more severe recession, as the monetary authorities attempt to offset these effects through even tighter monetary policy.

To put it simply, the longstanding inconsistency between monetary and fiscal policy in Canada, to which I referred earlier, is still perceived in many quarters to exist. This perception is generating expectations in financial markets that make fiscal expansion in current circumstances possibly counter-productive and even downright dangerous.

THE ROLE OF EXPECTATIONS

Expectations are notoriously difficult to handle in economic analysis, but nothing has emerged more clearly from this conference than an understanding of how crucial they are to our current policy dilemma. John Grant has gone so far as to refer to 'paranoia' in financial markets. He means by this, I believe, that fears of the imminent collapse of the Canadian dollar are hard to justify in the basis of present evidence. Nevertheless, as Grant has warned us, the past experience of financial markets has given them a lot to be paranoid about. Given the current situation, and given the forecasts set out in the papers by Wilson and Dungan and by McCallum, the deficit seems manageable both now and in the future. But two or three years ago it seemed as though the federal deficit for 1983 would be less than $10 billion. Instead it is three times as big. Why, then, should financial markets believe the forecasts this time around? After all, what would become of them if OPEC collapsed and there were a full-scale price war in the oil market?

We must turn to the papers by Parkin and by Bruce and Purvis for further guidance here, and I say 'guidance' rather than 'comfort' because the implications for the current policy debate of these apparently abstract pieces of analysis are far from encouraging. The essential results of Parkin's survey of recent work in the 'rational expectations' tradition of macroeconomics are easily summarized. If a government sets out on a course of policy that will ultimately - and 'ultimately' can be a very remote time in the future - force it into inflationary finance, and if the public believes that the government will stick to that policy, then the public will act in a way that will cause that 'ultimate' inflation to occur here and now.

It is important not to take such theoretical results literally. Traditional, and now discredited, Keynesian macro-models used to treat the government as farsighted and all-wise and the private sector as myopic, as if it behaved according to the same old rules of thumb regardless of what the government did. By the same token, many modern 'rational expectations' models deal with a world in which a farsighted and all-wise private sector is confronted by a totally stupid government, which pursues the same policies regardless of private sector reaction. Both approaches are unrealistic. The public learns from experience, but so do governments.

However, not taking results literally is not the same thing as not taking them seriously. The models that Parkin discusses tell us what will happen if adverse expectations about future government behaviour are engendered by current actions. Hence they tell us that, in the conduct of policy, avoiding the creation of such adverse expectations is crucial. Purvis and Bruce, in advocating the governing of fiscal policy by some rule requiring balance in the structural deficit (with due allowance for economic growth), are advocating the establishment of a social institution that would generate favourable expectations about deficits in the private sector, regardless of current conditions. They hope that such favourable long-term expectations would stave off the catastrophic consequences, implicit in some of the models that Parkin has analysed, of current increases in the deficit.

The trouble is that the kind of rule Purvis and Bruce advocate would not attain credibility simply be being legislated. Its credibility could emerge only from the constant interaction of the authorities and the private sector, interaction not just in their economic activities, but also in their political activities. In other words, credibility is born of experience. Moreover, once a credible rule is established, its durability should not be taken for granted. A rule for the conduct of economic policy will be kept credible only by constant political activity designed to stave off whatever pressures might be put on the authorities to abandon it.

This amounts to saying that certainty concerning the responsible conduct of economic policy in the future is simply not available in this world. Fortunately, it would appear that the economic system can live tolerably well with a good deal less than certainty. If it could not, it would have collapsed long ago. Nevertheless, what we are learning in Canada at this moment, or rather what we are being reminded of, is that the stability of the economic system cannot be taken for granted; that trust in the responsible behaviour of government, and in the capacity of the political process to enforce such responsible behaviour, can be dangerously eroded. It is precisely because trust in the authorities has been eroded over the last few years, particularly the trust of those operating our financial system, that the federal deficit presents so difficult a problem at this moment. Grant may believe that the markets are 'paranoid', but he is also warning us that the actions of paranoid people have real consequences, even if they stem from what the rest of us regard as delusions. He is right to give us this warning, and we should heed it.

CONCLUSIONS

It is not difficult to state succinctly the major conclusions that seem to me to have emerged from the papers presented at this conference. First, the deficits we are now seeing in this country, at both the federal and the provincial levels, ought not to be blamed on irresponsible fiscal policy. They are not the result of our elected representatives' going on an undisciplined spending spree. Rather the deficits in question are the result of 'stagflation'. While provincial governments are not to be blamed for this phenomenon, and while the Canadian economy is undoubtedly in some measure the victim of circumstances prevailing throughout the western world, it is not an accident that Canada is suffering stagflation on a grander scale than most countries. The federal authorities have failed to coordinate their various policies over the last few years, particularly their fiscal and monetary policies, and that failure has contributed in an important way to the current situation.

Some comfort is to be found if we simply compare the raw data on the current deficit with data generated in the past. A deficit that is largely due to stagflation is likely to go away as stagflation abates, provided nothing happens in the interim. Furthermore, even now, the country's debt-to-income ratio is at a rather low level by historical standards. It is no higher than it was in the 1950s and early 1960s, and those were years of steadily growing prosperity in Canada. Thus it is hard to argue that the national debt currently imposes a burden on the private sector that the latter cannot bear.

The trouble is that government debt is growing rapidly at this moment, and fears that it might become unmanageable in the future are already undermining confidence in certain important sectors of the economy, notably the financial sector. Conventional forecasts suggest that such fears, if not quite groundless, are certainly exaggerated, but they are there and must be taken into account in the design of policy. In large measure the authorities are boxed in, not by objective factors per se, but by the way in which those factors are interpreted by key agents in the economy. This is unfortunate, and the authorities' task would be much easier if these subjective elements has not intruded upon the scene; but they have intruded and they are important.

What, then, can be done in the current situation? My own view is that, above all, we must avoid a resurgence of double-digit inflation. Given the current state of knowledge, it is pointless to pretend that we know of any cure for inflation other than slack economic activity, because we don't. The more deeply inflation expectations are embedded in the economy, the more slack we need in order to eradicate them. The current recession is providing that slack. It is, in large measure, a fait accompli, and we may as well take advantage of it. If we end it too quickly, we shall have suffered all of its costs to obtain no lasting benefits. We shall simply have to repeat the whole process later on an even more painful scale.

Thus, sadly and not very helpfully, I must conclude that the current deficit and the way in which it is perceived effectively prohibits the authorities from undertaking anything more than a short-term token stimulative policy. If the Canadian economy is to be put upon a stable long-term footing, we must let the current recession take its course. The risks of doing otherwise are too great.

Discussion

JOHN BOSSONS: David, I liked your way of summarizing where we end up, because I think it is terribly important to recognize the importance of policy credibility and the strong appeal of rules. Nevertheless, it is also necessary to recognise that politcal pressures will force the government to be pragmatic and to respond to the pressures that are implied by what is likely to happen over the medium term.

One of the problems in talking about the deficit is that we are not always talking the same language. I personally believe that it is very important over the long run to control government expenditures. Indeed, one reason for my emphasizing the importance of measuring the structural deficit in cyclically adjusted terms is that I feel we must have an effective way of focusing attention on what is happening to the long-term stance of the government fiscal balance, so that we don't get misled into thinking that things are better or worse than they are.

Measuring the structural deficit is something that helps us understand where we are. It is a very different matter to ask where we should go.

There are major advantages in adhering to a fixed policy rule in the long term. Nevertheless I would be very concerned if people thought these long-term advantages sufficient to warrant not deviating from such a rule in the short term.

What has happened as a result of monetary policy (and to a lesser extent fiscal policy) over the last few years is that people have been burned. With the substantial volatility of interest rates and the sharp plunge in the economy, businessmen and investors in the financial markets have become risk averse to a degree that makes our present situation very different from any other post-war recession. It is this qualitative difference between where we are now and where we have been in any other recession since the Second World War that worries me. I am concerned about our getting misled by the high level of the deficit into thinking that we should not do anything about the secular stagnation that is likely to persist over the next half decade.

Even though one would want in the longer term to build up the credibility of policy rules, I think it is very important to recognize that this is one of those times when there would be real advantages to deviating temporarily from the policy rule that would be optimal in the long term in order to deal with a serious middle-term problem. This middle-term problem is the likelihood that we won't come within 3 or 4 percentage points of full employment even five years from now. If that is a correct characterization of the current medium-term outlook for the economy, and I think it is, then achieving better economic performance has to be given high priority.

My own prescription is fiscal stimuli that are primarily directed to increasing business capital formation. I am sure there are many others.

In any case, I do think we have to recognize that at least one dimension of the problem is that there is an unacceptably high probability of staying in a period of relative stagnation as a result of the risk aversion that has been built into the system by what has happened to monetary and fiscal policy over the last few years. The fact that what has happened is itself a result of deviation from the desired long-term policy rule does not make blind allegiance to such a rule good policy once such a deviation has occurred.

'Letting the current recession take its course' might well be an ideal anti-inflationary strategy if one could afford to ignore the effect of continued high levels of unemployment on the political system. However, doing so for a protracted period risks building up politically irresistible pressures for greater stimulus. If such pressures cannot be reflected in fiscal stimulus because of concern over the deficit, there is a high risk that they will be reflected in monetary stimulus. It is dangerous to assume that it is politically feasible to maintain a policy stance that implies a protracted period of high unemployment.

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